

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Review of Part 87 of the Commission's Rules	)	WT Docket No. 01-289
Concerning the Aviation Radio Service	)	

**REPORT AND ORDER AND FURTHER NOTICE OF PROPOSED RULE MAKING**

**Adopted: October 6, 2003**

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By the Commission:

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## I. INTRODUCTION AND EXECUTIVE SUMMARY

1. In this *Report and Order*, we amend Part 87 of the Commission's Rules (Part 87)<sup>1</sup> in an effort to accommodate technological advances, facilitate operational flexibility, and promote spectral efficiency in the Aviation Radio Service. In undertaking this streamlining and updating of the Part 87 rules, we have sought to avoid unnecessary regulation of aviators and equipment manufacturers, while keeping foremost in mind the impact our decisions may have on safety of life and property in air navigation. The amendments we adopt in this *Report and Order* are derived from those which were either proposed in the *Notice of Proposed Rule Making (NPRM)*<sup>2</sup> in this proceeding or proposed by parties filing comments in response to the *NPRM*. With respect to some issues, including certain proposals advanced by commenters, we believe the present record is inadequate to make a fully informed decision, and so we invite further comment on those proposals in the *Further Notice of Proposed Rule Making (FNPRM or Further Notice)*, which follows the *Report and Order*.

2. The major decisions we make in this *Report and Order* are that we:

- update the technical specifications for Aeronautical Mobile Satellite (Route) Service (AMS(R)S) equipment;
- decline at this time to authorize the provision of AMS(R)S under Part 87 in the 1610-1626.5 MHz and 5000-5150 MHz frequency bands with the same priority and real-time preemptive access accorded to AMS(R)S in the 1554-1559 MHz and 1646.5-1660.5 MHz bands;
- permit the certification of dual spacing transceivers to accommodate aircraft operating in countries that employ 8.33 kHz channel spacing;
- extend license terms of non-aircraft stations from five to ten years;
- extend the construction period for aeronautical advisory stations (unicoms)<sup>3</sup> and radionavigation land stations from eight months to one year;
- eliminate all references to the Civil Air Patrol from Part 87;
- authorize use of the Differential Global Positioning System (DGPS) in the 108-117.975 MHz and 1559-1610 MHz bands on a non-developmental basis, and also require DGPS receivers to meet minimum interference immunity requirements;
- modify the licensing approach for unicom;
- retain, without revision, the rule specifying that there may be only one aeronautical enroute station licensee per location, but clarify that the licensee is expected to provide access to the

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<sup>1</sup> 47 C.F.R. § 87.1 et seq.

<sup>2</sup> Review of Part 87 of the Commission's Rules Concerning the Aviation Radio Service, *Notice of Proposed Rule Making*, WT Docket No. 01-289, 16 FCC Rcd 19005 (2001).

<sup>3</sup> Unicom stations are used to provide safety-related and other information to aircraft, primarily general aviation aircraft. Unicom transmissions are limited to the necessities of safe and expeditious operation of aircraft, including runway conditions, types of fuel available, wind conditions, weather information, dispatching, and other necessary safety information. However, unicom stations may also transmit, on a secondary basis, information pertaining to the efficient portal-to-portal transit of an aircraft, such as information concerning available ground transportation, food, and lodging. Unicom stations must provide impartial information concerning available ground services, and must provide service to any aircraft station upon request and without discrimination. 47 C.F.R. § 87.215

spectrum on a reasonable, nondiscriminatory basis.

3. In addition, the *FNPRM* seeks comment on the following matters, which either were raised by commenters in response to the *NPRM*, or which we now propose:

- use of Universal Access Transceiver technology on the 978 MHz frequency;
- permitting licensees to utilize any emission type of their choosing in aeronautical spectrum that is not shared with other services, subject to certain conditions, and eliminating all requirements specific to data rates and modulation types, in order to accommodate new technologies such as Inmarsat's 64 kbps service;
- enabling the use of non-geostationary satellite networks for AMS(R)S;
- broadening AMS(R)S regulations so that they take account of the satellite systems of both Inmarsat and other operators;
- adopting additional technical requirements for AMS(R)S;
- identifying new uses for the frequencies formerly reserved for the Civil Air Patrol;
- removing the radionavigation allocation in the 14000-14200 MHz band;
- expanding the availability of air traffic control spectrum for ground control communications;
- codifying a waiver permitting certification and use of a back-up safety device designed to supplement conventional 121.5 MHz Emergency Locator Transmitters (ELTs);
- codifying a waiver authorizing a special station identification format to be used by aircraft being operated by maintenance personnel from one location in an airport to another location in the airport; and
- terminating the assignment of FCC control numbers to ultralight aircraft.

## II. BACKGROUND

4. Part 87 of the Commission's Rules governs the "Aviation Radio Service," an "umbrella term" that encompasses three discrete radio services designed to protect the safety of life and property in air navigation. These three services are: (1) the Aeronautical Mobile Service, which includes unicoms, aeronautical enroute stations, airport control stations, aircraft stations, and automatic weather observation stations; (2) the Aeronautical Radionavigation Service, which includes stations used for navigation, obstruction warning, instrument landing, and measurement of altitude and range; and (3) the Aeronautical Fixed Service, which is a system of fixed stations utilizing point-to-point radio communications for aviation safety, navigation or preparation for flight. The Commission has regulatory oversight responsibilities with respect to Aviation Radio Service, as does the Federal Aviation Administration (FAA).

5. As noted in the *NPRM*,<sup>4</sup> federal regulation of aviation communications pre-dates the creation of the Commission in 1934. As early as 1929, the Federal Radio Commission, the predecessor to this Commission as the federal agency charged with regulating communications services, adopted regulations

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<sup>4</sup> *NPRM*, 16 FCC Rcd at 19007 ¶ 4.

regarding aviation communications.<sup>5</sup> Moreover, the FCC, from its earliest days, recognized the vital importance of its oversight of aviation communications.<sup>6</sup> The FCC's rules governing the Aviation Radio Service were initially codified in Part 9 of its Rules, but were moved to Part 87 in 1963.<sup>7</sup> Prior to the instant rulemaking, the Part 87 rules were subject to an across-the-board review only once, in 1988.<sup>8</sup> To review developments that have occurred in the interim, the *NPRM* was released on October 16, 2001. In response to the *NPRM*, we received nine comments and seven reply comments.<sup>9</sup>

### III. REPORT AND ORDER

#### A. Aeronautical Mobile Satellite (Route) Service (AMS(R)S) Issues

##### 1. Updating of Technical Standards for AMS(R)S Equipment

6. *Background.* AMS(R)S<sup>10</sup> is a radio service providing communications via satellite between an aircraft earth station (AES)<sup>11</sup> and land stations or other AES.<sup>12</sup> AMS(R)S provides communications supporting operational control of both domestic and international air traffic. Such communications are important to the safe, efficient and economical operation of aircraft, and may convey information critical to aviation, such as aircraft position reports, performance, essential services and supplies, and weather information.<sup>13</sup> Public correspondence – private or personal messages of passengers or crew – is prohibited.

7. In 1992, the Commission adopted technical standards and licensing procedures for AMS(R)S.<sup>14</sup> These requirements were based on standards promulgated by industry standard-setting organizations, such as the Minimum Operational Performance Standards (MOPS), developed by RTCA, Inc. (RTCA),<sup>15</sup> and the Standards and Recommended Practices (SARPs), developed by the International

<sup>5</sup> See Federal Radio Commission, 3<sup>rd</sup> Annual Report, at 25 (1929).

<sup>6</sup> See, e.g., Federal Communications Commission, 3<sup>rd</sup> Annual Report, at 68 (1938) (“[w]ithout the aid of radio facilities authorized by the Commission, high speed passenger and air-mail service would be impracticable”).

<sup>7</sup> Reorganization and Revision of Chapter, *Order*, 28 Fed. Reg. 12386, 12388 (1963).

<sup>8</sup> See Reorganization and Revision of Part 87 Governing the Aviation Services, *Report and Order*, PR Docket No. 87-215, 3 FCC Rcd 4171 (1988).

<sup>9</sup> See Appendix C, *infra*, for names of commenters and the acronyms by which they are referred to herein. The FAA's initial and reply comments were filed late, accompanied by requests for waivers of the filing deadlines. We grant the waiver requests and accept the FAA's comments in the interest of having as complete a record as possible upon which to base the decisions in this proceeding.

<sup>10</sup> AMS(R)S was formerly referred to as AMSS(R). The “(R)” in both terms indicates that the spectrum is used for aeronautical communications related to the safety and regularity of flights primarily along national and international civil air routes.

<sup>11</sup> The term “aircraft earth station” refers to any mobile earth station in the aeronautical mobile-satellite service located on board an aircraft. See 47 C.F.R. § 87.5.

<sup>12</sup> See The Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band, *Report and Order*, IB Docket No. 99-81, 15 FCC Rcd 16127, 16154 ¶ 61 (2000) (*2 GHz Band Order*).

<sup>13</sup> See 47 C.F.R. § 87.261(a).

<sup>14</sup> See Amendment of Part 87 of the Commission's Rules to Establish Technical Standards and Licensing Procedures for Aircraft Earth Stations, *Report and Order*, PR Docket No. 90-315, 7 FCC Rcd 5895 (1992) (*AES Order*).

<sup>15</sup> RTCA is an FAA-sponsored association of aeronautical organizations with diverse membership. Organized in 1935 as the Radio Technical Commission for Aeronautics, RTCA today includes over 200 government, industry, and academic organizations from the United States as well as other nations, who seek technical solutions to problems involving the application of electronics and telecommunications to aeronautical operations. The findings

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Civil Aviation Organization (ICAO).<sup>16</sup>

8. Observing that the AMS(R)S technical standards in Part 87 had not been amended since 1992 although frequent updates had been made to the relevant MOPS and SARPs, the Commission proposed in the *NPRM* to revise Sections 87.131 and 87.139(i) of the Commission's Rules.<sup>17</sup> The proposed rule changes were intended to ensure that the Part 87 AMS(R)S technical standards comport with current industry standards.<sup>18</sup> Specifically, the Commission proposed to amend Section 87.131 to increase the allowable maximum output power of AES from sixty watts to eighty watts.<sup>19</sup> The Commission reasoned that the eighty-watt maximum is the correct value, given that output power is measured at the output of the high power amplifier (HPA), before factoring in losses from RF cable and diplexer filtering.<sup>20</sup> The Commission proposed to amend Section 87.139(i) so that the emission limits set forth therein would be consistent with the most recent industry standards. In addition, it sought to eliminate provisions that duplicate standards established by the FAA in its Technical Standards Order governing AMS(R)S.<sup>21</sup>

9. *Discussion.* Based on our review of the record in this proceeding, we now believe that the current sixty-watt maximum, reflected in Section 87.131, should be retained. Honeywell and Rockwell Collins, the only parties commenting on this issue, agree that retention of the sixty-watt maximum is appropriate.<sup>22</sup> As they correctly note, the Commission's premise for proposing the increase to eighty watts was that the reference point for the power measurement is the output of the HPA, as is typically specified in the Commission's Rules. However, we now believe that in this case the reference point should remain at the level of input port to the antenna subsystem because given the current state of transmitter technology it would not be possible for industry to meet spurious and harmonic emission requirements at the HPA output without the filtering provided by the diplexer.<sup>23</sup> Moreover, we believe that retaining the sixty-watt maximum with measurement at the input port of the antenna subsystem better conforms to relevant RTCA and ICAO specifications.<sup>24</sup> We therefore retain the maximum allowable value of sixty watts, and revise footnote 8 of Section 87.131 in order to clarify that the maximum average output power for aircraft earth stations may not exceed sixty watts, as measured at the input port of the antenna subsystem, including any installed diplexer.<sup>25</sup> This amendment provides clear guidance to

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of RTCA are in the nature of recommendations to all organizations concerned. While RTCA is not a government agency, its Special Committees act under the Federal Advisory Committee Act and its findings and recommendations are often adopted and turned into policy by government agencies.

<sup>16</sup> ICAO is an international body, operating under the auspices of the United Nations, that develops standards and recommended practices for international application in civil air navigation. Its recommendations, in part, serve as the basis for the Aviation Radio Service rules. See 47 C.F.R. § 87.1(a)(3).

<sup>17</sup> 47 C.F.R. §§ 87.131, 87.139(i).

<sup>18</sup> *NPRM*, 16 FCC Rcd at 19009 ¶ 7.

<sup>19</sup> *NPRM*, 16 FCC Rcd at 19009 ¶ 8.

<sup>20</sup> *Id.*

<sup>21</sup> *Id.* at 19009 ¶ 9.

<sup>22</sup> Honeywell Comments at 1-2; Rockwell Collins Comments at 2-3.

<sup>23</sup> See Honeywell Comments at 2; Rockwell Collins Comments at 3.

<sup>24</sup> *Id.*

<sup>25</sup> Honeywell suggests a revision to n.8 of 47 C.F.R. § 87.131 that goes beyond merely clarifying that the reference point for the power measurement is at the level of input to the antenna subsystem. In particular, Honeywell seeks to revise the second sentence of the footnote and to add a third sentence, which collectively would read as follows: "The maximum EIRP generated by the maximum power into the antenna port and the maximum designed antenna gain may not exceed 2000 watts. The maximum average output power under closed-loop gain control may not

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avionics equipment manufacturers, is reflective of the relevant international standards, and continues to serve the purpose for which the restriction was established.<sup>26</sup>

10. With respect to the emission limits, we adopt the proposed amendment of Section 87.139(i) set forth in the *NPRM*.<sup>27</sup> Commenters agree that our proposal appropriately aligns the rule with the emission limits set forth in RTCA DO-210D Change 1.<sup>28</sup> Honeywell and Rockwell Collins also suggest that we add footnotes to the rule to reflect notes 5 and 6 in RTCA DO-210D Change 1.<sup>29</sup> We will do so, in keeping with our objective of making the rule consistent with current industry standards.

11. Honeywell and Rockwell Collins state that some of the values set forth in the proposed amendment of Section 87.139(i) in Appendix A to the *NPRM* should be listed as negative values.<sup>30</sup> All of the values in the proposed amendment to Section 87.139(i) set forth in Appendix A to the *NPRM*, as in the current rule, were listed as positive values (in contrast to the negative values found in the analogous table in RTCA/DO-210D). Positive values were listed in light of the Commission's proposed footnote 1 to the table, which states that "[t]hese values are expressed in dB *below* the carrier referenced to the bandwidth indicated...." (Emphasis added.) However, upon further reflection, we believe it would better advance our goal of aligning Section 87.139(i) with RTCA/DO-210D Change 1 if all of the values in the table were expressed as negative values and footnote 1 were rewritten to specify that the values are expressed in dB referenced to the carrier for the bandwidth indicated. Our final amendment of the rule accords with this determination. Finally, we decline to take any action on Honeywell's request that the Commission review the requirements of RTCA/DO-210D Change 1, item 19, and determine how to appropriately reflect those requirements in Part 87.<sup>31</sup> Item 19 effectively establishes a guard band of five megahertz between AMS(R)S/AMSS aircraft-to-satellite transmissions governed by RTCA/DO-210D, on the one hand, and the upper edge of the so-called "Big LEO" band at 1610-1626.5 MHz, on the other. This issue affects satellite system operators and Part 25 regulatory requirements as much as it does Part 87 licensees and Part 87 regulatory requirements, and is in the nature of an allocation issue that we believe should be addressed in a broader rulemaking than one focused just on the Part 87 regulations. We therefore conclude that Honeywell's request is beyond the scope of this proceeding.

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exceed 630 watts." Honeywell Comments at 2. We decline to adopt this proposed language because we find it unnecessary to clarify the rule beyond indicating that the proper reference point for the power measurement is after the diplexer; moreover, Honeywell's explanation for this proposed language is unclear. Honeywell does not explain, for example, its derivation of the proposed 630-watt limitation.

<sup>26</sup> See *AES Order*, 7 FCC Rcd at 5898 ¶ 19.

<sup>27</sup> Honeywell, Rockwell Collins and Inmarsat support this action. See Honeywell Comments at 2-3; Rockwell Collins Comments at 3-4; Inmarsat Reply Comments at 1.

<sup>28</sup> Minimum Operational Performance Standards for Geosynchronous Orbit Aeronautical Mobile Satellite Services (AMSS) Avionics, Change No. 1 to RTCA/DO-210D (RTCA, Inc. 2000).

<sup>29</sup> Honeywell Comments at 3; Rockwell Collins Comments at 4. Note 5 specifies, with respect to the frequency bands 1610.6-1613.8 MHz, 1626.5-1660 MHz, and 1660-1660.5 MHz, that the specified attenuation level is not applicable to intermodulation products. Note 6 specifies that, with respect to the 1626.6-1660 MHz and 1660-1660.5 MHz bands, the upper limit for the excess power for any narrow-band spurious emission (excluding intermodulation products) within a 30 kHz measurement bandwidth shall be 10 dB above the power limit specified in the table.

<sup>30</sup> Honeywell Comments at 2-3; Rockwell Collins Comments at 4.

<sup>31</sup> Honeywell Comments at 4.

## 2. Expanding the Authorization of AMS(R)S

12. *Background.* The Commission allocated spectrum for the Mobile Satellite Service (MSS)<sup>32</sup> in 1986, determining that MSS operations could share spectrum with AMS(R)S operations.<sup>33</sup> The Commission allocated the 1549.5-1558.5 MHz and 1651-1660 MHz bands on a co-primary basis to the MSS and AMS(R)S, but granted the AMS(R)S priority and real-time preemptive access to the spectrum.<sup>34</sup> The Commission also allocated the 1545-1549.5 MHz and 1646.5-1651 MHz bands to the AMS(R)S on a primary basis, with the MSS secondary in these bands.<sup>35</sup>

13. Presently, Part 87 governs use of the 1545-1559 MHz and 1646.5-1660.5 MHz bands for AMS(R)S.<sup>36</sup> However, spectrum also is allocated to AMS(R)S on a primary basis, both domestically and internationally, in the 1610-1626.5 MHz and 5000-5150 MHz bands.<sup>37</sup> The 1610-1626.5 MHz and 5000-5150 MHz bands are regulated under Part 25 of the Commission's Rules.<sup>38</sup> While Part 87 Rules and footnote US308 specify that AMS(R)S communications are to have priority and preemptive access over other MSS use in the 1549.5-1558.5 MHz and 1651-1660 MHz bands,<sup>39</sup> Part 25 does not provide such priority and preemptive access for AMS(R)S in the 1610-1626.5 MHz and 5000-5150 MHz bands.

14. In the *NPRM*, the Commission requested comment on whether use of the 1610-1626.5 MHz and 5000-5150 MHz bands for AMS(R)S should be authorized under Part 87.<sup>40</sup> The Commission stated that such an amendment would make the regulatory treatment and licensing of the 1610-1626.5 MHz and 5000-5150 MHz bands more consistent with the regulatory treatment and licensing of the 1646.5-1660.5 MHz band.<sup>41</sup> Further, the Commission sought comment on whether to provide for priority and real-time preemptive access for AMS(R)S in the 1610-1626.5 MHz and 5000-5150 MHz bands. In the *NPRM*, the Commission indicated that it was inclined against extending priority and real-time preemptive access to

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<sup>32</sup> Mobile Satellite Service is a radio communication service between mobile earth stations and one or more space stations. See 47 C.F.R. § 2.1. A mobile earth station is an earth station intended for use while in motion or during halts at unspecified points. See 47 C.F.R. § 25.201.

<sup>33</sup> See Amendment of Parts 2 and 22 of the Commission's Rules Relative to Cellular Communications Systems, *Report and Order*, Gen. Docket Nos. 84-1231, 84-1233, 84-1234, 2 FCC Rcd 1825, 1844-45 ¶¶ 154-155 (1986) (*MSS Allocation Order*).

<sup>34</sup> The priority and real-time preemptive access accorded to the AMS(R)S in the 1549.5-1558.5 MHz and 1651-1660 MHz bands is reflected in footnote US308 to the Section 2.106 Table of Frequency Allocations. 47 C.F.R. § 2.106 n.US308.

<sup>35</sup> See *MSS Allocation Order*, 2 FCC Rcd at 1844-45 ¶¶ 154-155 (1986).

<sup>36</sup> See 47 C.F.R. § 87.187(q). The 1545-1559 MHz band is allocated for space-to-Earth transmission, while the 1646.5-1660.5 MHz band is allocated for Earth-to-space transmission.

<sup>37</sup> See International Telecommunication Union *Radio Regulations*, Volume 1, Geneva, 2001, ISBN 92-61-09361-2 (ITU *Radio Regulations*) n.5.367; 47 C.F.R. § 2.106 n.5.367. While the 5150-5250 MHz band and the 15.4-15.7 GHz band had also been allocated domestically to AMS(R)S on a primary basis, the Commission deleted those AMS(R)S allocations in early 2002, following the recommendation of the 1995 World Radiocommunication Conference (WRC-95). See Amendment of Parts 2, 25 and 97 of the Commission's Rules with Regard to the Mobile-Satellite Service Above 1 GHz, *Report and Order*, ET Docket 98-142, 17 FCC Rcd 2658, 2660 ¶ 3 (2002).

<sup>38</sup> See 47 C.F.R. § 25.202(a).

<sup>39</sup> See 47 C.F.R. §§ 2.106 n.US308, 87.187(q), 87.189(d).

<sup>40</sup> *NPRM*, 16 FCC Rcd at 19010 ¶ 11.

<sup>41</sup> *Id.*



the 1610-1626.5 MHz and 5000-5150 MHz bands because the ITU had not done so.<sup>42</sup>

15. *Discussion.* At this time, we decline to amend the Rules to provide the additional AMS(R)S allotment in Part 87 or expand the reach of footnote US308. Although the commenters are in unanimous agreement that we should amend Part 87 to provide for the use of the 1610-1626.5 MHz and 5000-5150 MHz bands for AMS(R)S,<sup>43</sup> they are deeply divided on the question of whether we should extend the protections of priority and real-time preemptive access to AMS(R)S in those bands. The proponents of priority and real-time preemptive access – the FAA, ARINC/ATA, and Rockwell Collins – argue that the same safety considerations that support giving priority and preemptive access to AMS(R)S communications in the 1545-1559 MHz and 1646.5-1660.5 MHz bands militate in favor of doing likewise in the 1610-1626.5 MHz and 5000-5150 MHz bands.<sup>44</sup> On the other hand, Boeing and Globalstar contend that such a mandate is unnecessary and may be counterproductive, because intra-network priority and preemptive access for AMS(R)S communications can be achieved without a Commission mandate. Specifically, they suggest alternative means such as FAA regulations, RTCA standards, the ITU *Radio Regulations* or contractual arrangements.<sup>45</sup>

16. Subsequent to the adoption of the *Notice of Proposed Rule Making* in this proceeding, the Commission released a *Notice of Proposed Rule Making* in ET Docket No. 02-305,<sup>46</sup> in which it proposes to alter the existing MSS and AMS(R)S allocations in the 1545-1559 MHz and 1646.5-1660.5 MHz bands. Specifically, the Commission has proposed to establish a primary, generic MSS allocation in the bands 1545-1549.5 MHz, 1558.5-1559 MHz, 1646.5-1651 MHz, and 1660-1660.5 MHz, and to delete as superfluous the AMS(R)S allocations in the bands 1549.5-1558.5 MHz and 1651-1660 MHz.<sup>47</sup> Given the pendency of these proposals to alter the treatment of AMS(R)S in the L-band<sup>48</sup> under the Part 2 Table of Frequency Allocations, we believe it would be premature to create a new Part 87 designation for AMS(R)S in the 1610-1626.5 MHz and 5000-5150 MHz bands or to extend the protections of priority and preemptive access to AMS(R)S operations in those bands. The Commission indicated in the *NPRM* that it would consider adding an allocation for AMS(R)S in the 1610-1626.5 MHz and 5000-5150 MHz bands under Part 87 in order to make the regulatory treatment of AMS(R)S in these bands more consistent with the regulatory treatment of AMS(R)S in the L-band frequencies already covered by Part 87.<sup>49</sup> Accordingly, we believe it would be prudent to defer acting on this issue in this proceeding until a decision is reached in ET Docket No. 02-305 on whether those L-band allocations for AMS(R)S should be modified. When we again address this issue, it will be incumbent on the proponents of priority and preemptive access to clearly demonstrate why it is essential that AMS(R)S be accorded such enhanced

<sup>42</sup> *Id.* at 19010 n.24.

<sup>43</sup> See ARINC/ATA Comments at 7-8; Boeing Comments at 5-7; FAA Comments at 1, 3; Globalstar Reply Comments at 3-8; Rockwell Collins Comments at 5.

<sup>44</sup> FAA Comments at 1, 3; ARINC/ATA Comments at 7-8; Rockwell Collins Comments at 5.

<sup>45</sup> Boeing Comments at 5-7; Globalstar Reply Comments at 3-8; Boeing Reply Comments at 2-6.

<sup>46</sup> Amendment of Parts 2, 25, and 87 of the Commission's Rules to Implement Decisions from World Radiocommunication Conferences Concerning Frequency Bands Between 28 MHz and 36 GHz and to Otherwise Update the Rules in this Frequency Range, *Notice of Proposed Rule Making*, ET Docket No. 02-305, 17 FCC Rcd 19756 (2002).

<sup>47</sup> *Id.*, 17 FCC Rcd at 19763 ¶¶ 17-18. The Commission has held that AMS(R)S may be provided in any frequency band in which there is an allocation for generic MSS since AMS(R)S is viewed as a subcategory of MSS. See *2 GHz Band Order*, 15 FCC Rcd at 16154-55 ¶¶ 62, 64.

<sup>48</sup> In the past, the L-band referred to the spectrum between 1 and 2 GHz. See *MSS Allocation Order*, 2 FCC Rcd at 1861 n.6. Here, however, references to the L-band are intended to cover only the bands allocated to AMS(R)S and/or MSS between 1545 MHz and 1660.5 MHz.

<sup>49</sup> *NPRM*, 16 FCC Rcd at 19010 ¶ 11.

access to the spectrum resource vis-à-vis other services.

## **B. Aeronautical Enroute Station Issues**

17. *Background.* Aeronautical enroute stations are used for air-ground operational control communications to aircraft along domestic or international air routes, and may not be used for public correspondence.<sup>50</sup> Airlines and other companies that maintain fleets of aircraft use these stations to satisfy certain FAA requirements. In the case of large trunk air carriers, these stations are used for maintaining reliable communications between each aircraft and the appropriate dispatch office. In the case of small airlines and large commercial aircraft operations, aeronautical enroute stations are used for maintaining flight-following systems.<sup>51</sup>

18. When commercial aviation was still in its infancy, it was recognized that there was not sufficient suitable spectrum available to allow each aviation organization to have its own chain of radio stations to provide aeronautical enroute coverage along its various air routes.<sup>52</sup> With encouragement from the Federal Radio Commission, early air transport companies adopted a plan calling for coordination and cooperation in the use of the available aeronautical enroute frequencies.<sup>53</sup> To implement that plan, ARINC was incorporated in 1929 as a private communications company dedicated to serving the air transport industry on a non-profit, cost-sharing basis.<sup>54</sup> ARINC is the licensee of all domestic network<sup>55</sup> aeronautical enroute stations in the continental United States

19. Section 87.261(c) of the Commission's Rules specifies that, except in Alaska, only one aeronautical enroute licensee may be authorized at any one location.<sup>56</sup> In 1981, the Commission affirmed the continuing validity of the rationale for this one-licensee-per-location rule. In this regard, the Commission noted that ARINC's stewardship of the aeronautical enroute spectrum provides a number of public benefits, including (1) cost-based rates, (2) better management of communications networks, (3) efficient spectrum use, and (4) incentives for research and development.<sup>57</sup> In the *1981 Order*, the Commission described a number of negative consequences that it believed would result from eliminating the one licensee per location rule, including reduced spectral efficiency, reduced usefulness of the industry database, greater difficulty in coordinating frequency assignments, increased congestion and interference, and greater difficulty in the planning and implementation of new techniques and

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<sup>50</sup> See 47 C.F.R. § 87.261(a).

<sup>51</sup> See 14 C.F.R. §§ 121.99, 121.125.

<sup>52</sup> See Amendment of Part 87 to Clarify the Aeronautical Enroute Station Rules and Provide Two Additional Frequencies for Use by Small Aircraft Operating Agencies, *Report and Order*, PR Docket 80-243, 87 FCC 2d 382, 384 ¶ 9 (1981) (*Aeronautical Enroute Order* or *1981 Order*).

<sup>53</sup> *Id.*

<sup>54</sup> *Id.* ARINC's principal stockholders as well as principal customers are the U.S. scheduled airlines, but it provides its services to all aircraft operators, including foreign airlines, business entities and private individuals.

<sup>55</sup> Functionally, U.S. aeronautical enroute stations can be classified in two basic categories, network stations and local area stations. A network consists of a group of interconnected (via private lines and/or microwave circuits) enroute stations operating on the same frequency and serving a given flight route. Alternatively, numerous other licensed enroute stations sharing the same frequency band are not part of an enroute network; these off-net VHF stations provide local area service and are usually located at an airport.

<sup>56</sup> 47 C.F.R. § 87.261(c). In Alaska, one aeronautical enroute station licensee in the domestic service and one aeronautical enroute station licensee in the international service may be authorized at any one location. Location for the purposes of this rule is defined as "the area which can be adequately served by the particular station." *Id.*

<sup>57</sup> *Aeronautical Enroute Order*, 87 FCC 2d at 386 ¶ 16.

configurations.<sup>58</sup>

20. In 1997, Société Internationale de Télécommunications Aéronautiques (SITA), which provides aeronautical enroute services in Europe, asked the Commission to consider whether the one-licensee-per-location limitation comports with U.S. policy in meeting our country's commitments under the World Trade Organization (WTO) Basic Telecommunications Agreement, which had been finalized earlier that year.<sup>59</sup> SITA noted that most countries impose no limitation on the number of aeronautical enroute licensees authorized per location. Further, it argued that allowing more than one aeronautical enroute licensee per location in the United States would introduce competition into the aeronautical enroute service market, producing a number of benefits.<sup>60</sup> The Commission declined to address SITA's request at that time, but stated that it would seek comment on this issue in a separate proceeding.<sup>61</sup>

21. In the *NPRM*, the Commission invited comment on whether Section 87.261(c) of the Commission's Rules should be amended to allow more than one aeronautical enroute licensee at a given location.<sup>62</sup> Commenters were asked to specifically address whether the introduction of competition into this service would create the benefits described by SITA in its 1997 pleadings, or whether allowing more than one licensee in the same location would produce the negative effects noted by the Commission in the *1981 Order*.<sup>63</sup>

22. *Discussion.* We agree with ARINC/ATA that the current one-licensee-per-location limitation should remain intact. In this connection, we find it significant that the current rule has worked exceedingly well over the years, fostering safety, efficiency, competition, innovation and growth.<sup>64</sup> We further agree with ARINC/ATA that the one-licensee-per-location restriction is consistent with U. S. obligations under the WTO Basic Telecommunications Agreement. In this regard, we note ARINC's statement that it treats foreign operators the same as domestic service providers who seek to use ARINC-licensed frequencies for purpose of providing aeronautical enroute service.<sup>65</sup> Notably, it appears that ARINC already provides SITA with access to aeronautical enroute spectrum on an equitable basis.<sup>66</sup> Moreover, we continue to believe that the one-licensee-per-location rule permits coordination that provides for efficient sharing of the spectrum. As ARINC/ATA suggests, we are concerned that eliminating the rule may harm competition because it would provide incentives for warehousing frequencies, would impair long-term planning by the industry, and would not lower the cost of aeronautical enroute service since such service is already offered on a cost recovery basis.<sup>67</sup> We also find it decisionally significant that SITA, the only other commenter to address this issue, no longer is requesting repeal of the one-licensee-per-location limitation, but rather takes the position that "the Commission can allow the 'one licensee to a market' rule to remain in effect, so long as it explicitly

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<sup>58</sup> *Id.* at 386-87 ¶ 17.

<sup>59</sup> See Rules and Policies on Foreign Participation in the U.S. Telecommunications Market, *Report and Order and Order on Reconsideration*, IB Docket 97-142, 12 FCC Rcd 23891, 23939 ¶ 110 (1997) (*WTO Proceeding*).

<sup>60</sup> See *NPRM*, 16 FCC Rcd at 19012 ¶ 15, and SITA pleadings cited therein.

<sup>61</sup> *WTO Proceeding*, 12 FCC Rcd at 23942 ¶ 118.

<sup>62</sup> *NPRM*, 16 FCC Rcd at 19013 ¶ 16.

<sup>63</sup> See *id.*

<sup>64</sup> ARINC/ATA Comments at 3-8, 14-17; ARINC/ATA Reply Comments at 4-5.

<sup>65</sup> ARINC/ATA Comments at 8-14.

<sup>66</sup> *Id.* at 11-12.

<sup>67</sup> *Id.* at 17-19.

assigns a frequency coordinator role to ARINC with specific nondiscrimination obligations.”<sup>68</sup>

23. We continue to believe that the public interest is served by maintaining the one-licensee-per-location limitation in the aeronautical enroute service. The spectrum scarcity that led to the promulgation of the one-licensee-per-location rule is still a reality in the aeronautical enroute service and, more broadly, in the Aviation Radio Service. The record indicates that central coordination of the aeronautical enroute spectrum by the civil aviation industry continues to offer significant benefits in terms of efficiency and innovation.

24. We decline to adopt SITA’s proposal to amend Section 87.261 to codify nondiscrimination requirements for ARINC<sup>69</sup> because we have not been presented with empirical evidence of any real-life problem that requires a regulatory response. We note that ARINC/ATA asserts, and SITA does not dispute, that ARINC has equitably facilitated the entry of competing enroute communications service providers, and has not rejected requests for access to the spectrum on grounds of unavailability.<sup>70</sup> SITA acknowledges that it has gained access to the U.S. market through the use of ARINC-licensed spectrum.<sup>71</sup> Given that SITA’s proposal appears to address a theoretical concern, we believe it unnecessary to amend the rule in response thereto. We nonetheless note our expectation that ARINC would continue to coordinate the aeronautical enroute spectrum in an equitable manner, without discrimination and on a cost recovery basis, and to endeavor to provide access to the spectrum to all who seek such access, to the extent technically feasible.<sup>72</sup> We would be very concerned if information came to us indicating that ARINC was departing from its historical practices with respect to providing reasonable nondiscriminatory access to the aeronautical enroute spectrum for which it is licensed. SITA, of course, may file a complaint with the Commission if it has objective information and/or evidence that ARINC is acting in a manner inconsistent with the Commission’s rules and policies, including those reiterated herein.<sup>73</sup> We reserve the discretion to revisit this issue should future developments so warrant.

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<sup>68</sup> In its comments, SITA contends that, in addition to imposing specific nondiscrimination obligations on ARINC, the Commission should ensure that ARINC’s frequency coordination role is independent of its service provider operations by requiring Aeronautical Radio, Inc., the ARINC subsidiary that performs frequency coordination, to be governed by an independent Board of Directors consisting of aircraft operator representatives and excluding any representatives or officers of service providers that use aeronautical enroute spectrum. SITA Comments at 6. In its reply comments, however, SITA presses only for the codification of nondiscrimination obligations. *See* SITA Reply Comments at 2-6.

<sup>69</sup> *Id.*

<sup>70</sup> ARINC/ATA Comments at 8 (“Satisfying requests for new frequency assignments can require significant coordination efforts by ARINC, including changing existing frequency assignments, but all requests that satisfy the appropriate requirements are met.”).

<sup>71</sup> SITA Comments at 3 & n.6; SITA Reply Comments at 4.

<sup>72</sup> While SITA correctly notes that the Commission typically has imposed nondiscrimination requirements on frequency coordinators and band managers, it is also true that the Commission has not always codified those requirements. For example, nondiscrimination and other requirements for 700 MHz guard band managers were codified. *See* 47 C.F.R. § 27.603. However, nondiscrimination requirements for the frequency coordinators of Part 90 private land mobile radio services have not been codified, but were set forth as a non-codified policy in the text of a rulemaking order. *See* Frequency Coordination in the Private Land Mobile Radio Services, *Report and Order*, PR Docket No. 83-737, 103 FCC 2d 1093, 1101-02 ¶ 18 (1986); *see also* 47 C.F.R. § 90.175.

<sup>73</sup> *See* Establishment of Rules Governing Procedures to Be Followed When Informal Complaints Are Filed by Consumers Against Entities Regulated by the Commission, *Memorandum Opinion and Order and Notice of Proposed Rule Making*, CI Docket No. 02-32, 17 FCC Rcd 3919 (2002); *see also* 47 C.F.R. § 0.141. Alternatively, SITA could also seek redress through a petition for a declaratory ruling. *See* 47 C.F.R. § 1.2.

### C. Standards for Automatic Station Logs

25. *Background.* Section 87.109 of the Commission's Rules provides that a station at a fixed location in the international aeronautical mobile service must maintain a written or automatic log in accordance with Paragraph 3.5, Volume II, Annex 10 of the ICAO Convention.<sup>74</sup> Annex 10 of the ICAO Convention contains specific guidelines only for written station logs, not computer-generated automatic station logs. In 2000, ARINC asked the Commission to clarify whether stations must maintain a separate "Sign In and Out Log" when utilizing automatic logs.<sup>75</sup> According to ARINC, a separate Sign In and Out Log is redundant because automated station logs electronically indicate radio operators as on and off at the position they work during a shift.<sup>76</sup>

26. In the *NPRM*, the Commission proposed, as a preliminary matter, to eliminate the specific reference to Paragraph 3.5, Volume II, Annex 10 of the ICAO Convention, and replace it with a more abbreviated reference to Annex 10 of the ICAO Convention. The Commission believed that removing the reference to the specific paragraph would minimize the effect on the Commission's Rules of changes to that specific paragraph.<sup>77</sup> In response to ARINC's request, the Commission also proposed to clarify that computer-generated automatic logs must contain the same information as written logs – the information required by Annex 10 of the ICAO Convention – except for the Sign In and Out portion of the log, and to further amend Section 87.109 to add a detailed description of the required information.<sup>78</sup> The Commission stated that such an approach would reduce confusion concerning the station log requirements and would promote increased use of automatic station logs.<sup>79</sup>

27. *Discussion.* Based on our review of the record in this proceeding, we will adopt the amendments to Section 87.109 as proposed in the *NPRM*. ARINC/ATA, the sole commenter addressing these issues, agrees with the Commission's proposals to eliminate the reference to a specific paragraph in Annex 10 of the ICAO Convention and to specify that operators of automatic logs do not have to separately sign in and sign out in handwriting.<sup>80</sup> We agree with ARINC/ATA that operator signatures are unnecessary because the computer terminals at fixed aeronautical stations record all of the information required by Annex 10 (other than the operator's handwritten signature) plus an electronic log-on and log-off by the radio operator.<sup>81</sup> We believe that the rule changes we adopt today will simplify and clarify the application of the rule to station operators using automatic logs. We also believe these changes may encourage greater use of automatic logs, which we find to be in the public interest because of their efficiency, reliability, and accuracy. We also will amend Section 87.109 to provide a detailed and comprehensive list of the particular items of information required to be included in the logs.<sup>82</sup> While ARINC/ATA favors simply revising Section 87.109 to state "Automatic logs shall contain the information required of written logs except that no operator signature is required,"<sup>83</sup> we conclude that

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<sup>74</sup> 47 C.F.R. § 87.109.

<sup>75</sup> Letter, dated August 17, 2000, from Jerry Wiles, Center Operation Manager, San Francisco ARINC, to FCC.

<sup>76</sup> *Id.*

<sup>77</sup> *NPRM*, 16 FCC Rcd at 19013-14 ¶ 18.

<sup>78</sup> *Id.* at 19014 ¶ 19.

<sup>79</sup> *Id.* at 19014 ¶ 20.

<sup>80</sup> ARINC/ATA Comments at 22-23.

<sup>81</sup> *Id.* ARINC/ATA further points out that, at these automated stations, all voice communications with aircraft are taped, and all data communications are also recorded. *Id.*

<sup>82</sup> See § 87.109 in Appendix A, *infra*.

<sup>83</sup> ARINC/ATA Comments at 22.

listing the specific log requirements individually in Section 87.109 will avoid imposing a potentially burdensome responsibility on licensees to keep up-to-date with the ICAO requirements. Since these log requirements are not technical regulations, we expect that they will be revised infrequently. Therefore, any burden on the Commission to update the rule in response to the occasional ICAO changes should be minimal, and we believe the burden of monitoring changes to the ICAO requirements is better placed on the Commission than on individual licensees.

#### **D. Equipment Certification Issues**

##### **1. Accommodation of 8.33 kHz Channel Spacing Transmitters**

28. *Background.* In 1997, ICAO adopted a channel plan based on a 8.33 kHz channel bandwidth for Aeronautical Mobile (Route) Service (AM(R)S) communications in the 118-137 MHz band.<sup>84</sup> This move to a narrower bandwidth was intended to alleviate a shortage of very high frequency (VHF) air traffic control channels in Western Europe and the United Kingdom.<sup>85</sup> Eight countries implemented the 8.33 kHz channel plan in 1999,<sup>86</sup> and aircraft operating within the airspace of those eight countries must now be able to transmit and receive on 8.33 kHz channels. In the United States, however, aircraft transmitters may be certified only if they comply with Commission and FAA requirements, including the 25 kHz channelization specified in Part 87 for the VHF aeronautical frequencies.<sup>87</sup> Accordingly, waivers of Section 87.173(b) of the Commission's Rules are necessary to allow certification of any transmitter capable of operating on 8.33 kHz channels, including dual channel spacing transceivers, which are designed to operate on both 8.33 kHz channels and 25 kHz channels.<sup>88</sup>

29. In the *NPRM*, the Commission proposed to amend Section 87.137 of its Rules to permit certification of dual channel spacing transceivers to accommodate U.S.-registered aircraft flying to, from or within the eight nations that have implemented the 8.33 kHz channel plan.<sup>89</sup> The Commission tentatively concluded that such an amendment would promote air safety and operational efficiency, avoiding the need to resort to the administratively burdensome waiver process before approving the use of dual channel spacing transceivers that are necessary for reliable communication with air traffic controllers in the eight nations.<sup>90</sup> The Commission emphasized that use of 8.33 kHz channels for communications within the

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<sup>84</sup> See *International Standards and Recommended Practices, Aeronautical Telecommunications*, Annex 10 to the Convention on Civil Aviation, Vol. V, Aeronautical Radio Frequency Spectrum Utilization, Amendment No. 72, International Civil Aviation Organization, Montreal, 1997 (ISRP). Ordinarily, when the ICAO adopts International Standards and Recommended Practices, they are binding on the contracting countries. However, contracting countries were not required to implement 8.33 kHz channel bandwidths if their current channel spacing standards provide an adequate number of frequencies. ISRP at 6, ¶ 4.1.2.1. The United States continues to use 25 kHz channels.

<sup>85</sup> See *Plan for the 8.33 kHz Channel Spacing Implementation in Europe* (8.33 kHz Spacing Plan), Edition 2.0, European Civil Aviation Conference, Dec. 2, 1996 at 2.

<sup>86</sup> The implementing countries are Austria, Belgium, France, Germany, Luxembourg, the Netherlands, Switzerland and the United Kingdom. *Id.*

<sup>87</sup> See 47 C.F.R. §§ 87.39 (specifying that aircraft transmitters will be approved by the Commission based on the technical requirements set forth in subpart D of Part 87), 87.145(a)-(b) (specifying that only certified transmitters meeting FCC and FAA requirements may be used), 87.173(b) (listing assignable VHF frequencies on the basis of 25 kHz channel spacing).

<sup>88</sup> See, e.g., Rockwell Collins, Inc., *Order*, 13 FCC Rcd 2954 (WTB PSPWD 1998); Wulfsberg Electronic Division, *Order*, 15 FCC Rcd 10992 (WTB PSWPD 2000).

<sup>89</sup> *NPRM*, 16 FCC Rcd at 19016 ¶ 24.

<sup>90</sup> *Id.*

National Airspace System (NAS)<sup>91</sup> would remain prohibited.<sup>92</sup>

30. The Commission also noted in the *NPRM* that, like Europe, the United States is experiencing a growing shortage of VHF air traffic control channels, and that the FAA is evaluating the use of VHF Data Link, Mode 3 (VDL-3), a new digital communications system plan that utilizes Time Division Multiple Access (TDMA) technology as an alternative to 8.33 kHz channelization, in order to allow more efficient use of the spectrum for domestic air travel.<sup>93</sup> The Commission sought comment on whether the Part 87 Rules should be amended to accommodate TDMA emissions in the VHF AM(R)S band.<sup>94</sup> As additional measures that could address the shortage of VHF air traffic control channels, the Commission also sought comment on whether to (a) allow the use of the 121.975-122.675 MHz band, which is currently designated for FAA flight service stations (FSS), for air traffic control on a secondary basis; and (b) allow the use of the 121.6-121.95 MHz band for general air traffic control communications, removing the present restriction limiting the use of these frequencies to ground control operations.<sup>95</sup> The Commission said that it did not anticipate major coordination problems stemming from adoption of these two proposals because both the primary and the secondary services would be under the FAA's management.<sup>96</sup>

31. *Discussion.* Based on the record before us, we decide to amend our Rules to accommodate dual channel spacing transceivers that can communicate using 8.33 kHz channels as well as 25 kHz channels, subject to the proviso that the use of 8.33 kHz channels in domestic airspace remains strictly prohibited.<sup>97</sup> We agree with ARINC/ATA that this rule change will enhance the safety of U.S. aircraft that operate internationally.<sup>98</sup> In order to implement this proposal while maintaining a ban on the use of 8.33 kHz channels on domestic flights, we shall add to the types of emission permitted by Section 87.137, the emission designator 5K6A3E for emission class A3E with an authorized bandwidth of 8.33 kHz. In addition, rather than simply noting that emission designator 5K6A3E is authorized only for aircraft in international flight, as proposed in the *NPRM*,<sup>99</sup> we will add a footnote, based on the suggestions of the FAA and Boeing.<sup>100</sup> The footnote will state:

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<sup>91</sup> The NAS is the common network of U.S. airspace; air navigation facilities, equipment and services, airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures; technical information; and manpower and material. This system includes system components shared jointly with the military. *Aeronautical Spectrum Planning for 1997-2010*, Doc. No. RTCA/DO-237 (1997).

<sup>92</sup> *NPRM*, 16 FCC Rcd at 19016 ¶ 25. We note that the Chief, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, has granted a waiver to Rockwell Collins so that it may obtain equipment certification of dual spacing transceivers, subject to the Commission's resolution of this issue in the instant rulemaking. See Rockwell Collins, Inc., Request for Waiver Concerning Certification of Aviation Transceivers Capable of Transmitting Outside the 108-137 MHz Civil Aviation Band and Waiver of Section 87.173(b) of the Commission's Rules Governing Assignable Carrier Frequencies in the Aviation Services, *Order*, 18 FCC Rcd 1509 (WTB PSPWD 2003).

<sup>93</sup> *NPRM*, 16 FCC Rcd at 19016 ¶ 26.

<sup>94</sup> *Id.*

<sup>95</sup> *Id.* at 19017 ¶ 27.

<sup>96</sup> *Id.*

<sup>97</sup> *Accord* FAA Comments at 1, 4; ARINC/ATA Comments at 24; Rockwell Collins Comments at 6; Boeing Comments at 11-13.

<sup>98</sup> ARINC/ATA Comments at 24.

<sup>99</sup> *NPRM*, 16 FCC Rcd at 19016 ¶ 24.

<sup>100</sup> FAA Comments at 4; Boeing Comments at 12-13. Because we are not generally authorizing 8.33 kHz channel spaced transmissions in U.S. airspace, we see no need to amend Section 87.133 of the Rules, 47 C.F.R. § 87.133, to

(continued....)

In the band 117.975-137 MHz, the Commission will not authorize any 8.33 kHz channel spaced transmissions or the use of their associated emission designator within the U.S. National Airspace System, except by avionics equipment manufacturers and Flight Test Stations, which are required to perform installation and checkout of such radio systems prior to delivery to their customers for use outside U.S. controlled airspace. For transmitters certificated to tune to 8.33 kHz channel spacing as well as 25 kHz channel spacing, the authorized bandwidth is 8.33 kHz when tuned to an 8.33 kHz channel.

32. At this time, we decline to take further action to accommodate TDMA emissions. With respect to the issue of accommodating TDMA emissions in the VHF AM(R)S band, we note that in 2001 the Commission amended Sections 87.131, 87.133, 87.137, and 87.139 of its Rules<sup>101</sup> to accommodate digital communications systems, including TDMA systems, throughout the VHF aeronautical radio spectrum.<sup>102</sup> Specifically, in the *136-137 MHz Order*, the Commission permitted use of the emissions classes for phase modulation digital data transmission throughout the entire 117.975-137 MHz band,<sup>103</sup> primarily in order to accommodate deployment of VDL-3 by the FAA.<sup>104</sup> Commenters have not identified any additional measures they believe are needed to accommodate TDMA emissions.<sup>105</sup> Thus, on the basis of this record, we decline to take further action to accommodate TDMA emissions beyond the measures adopted in the *136-137 MHz Order*.<sup>106</sup>

33. Finally, we will amend our Rules to provide, as proposed in the *NPRM*, that (a) the FAA may use the 121.975-122.675 MHz band for air traffic control communications on a co-primary basis with

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specify a frequency tolerance for 8.33 kHz channel spacing transmitters, as proposed by Boeing. See Boeing Comments at 13. If 8.33 kHz channel spaced transmissions are authorized domestically in the future, we will address technical requirements for 8.33 kHz channel spaced transmitters at that time. In addition, we decline to adopt unrelated proposals to update Section 87.133 proposed by the FAA and Boeing. See FAA Comments at 11; Boeing Comments at 13 n.26. However, we invite comment in the *FNPRM* on amending Section 87.133. See n.320, *infra*.

<sup>101</sup> 47 C.F.R. §§ 87.131, 87.133, 87.137, 87.139.

<sup>102</sup> See Amendment of Parts 2 and 87 of the Commission's Rules to Accommodate Advanced Digital Communications in the 117.975-137 MHz Band and to Implement Flight Information Services in the 136-137 MHz Band, *Report and Order*, WT Docket No. 00-77, 16 FCC Rcd 8226, 8231-32 ¶¶ 13-14 (*136-137 MHz Order*), *reconsideration granted in part, Memorandum Opinion and Order*, WT Docket No. 00-77, 17 FCC Rcd 360 (2001).

<sup>103</sup> *136-137 MHz Order*, 16 FCC Rcd at 8232 ¶ 14.

<sup>104</sup> *Id.* However, the Commission determined not to designate the 136-136.475 MHz band or any other spectrum for VDL-3 use exclusively. The Commission reasoned that "placing no restrictions on the types of digital technologies that may operate in the 136-137 MHz band or, for that matter, the entire 117.975-137 MHz band will promote flexibility and efficiency during the transition to digital aviation communications systems." *Id.*

<sup>105</sup> See, e.g., FAA Comments at 1 (stating that the FAA favors accommodating TDMA emissions in the VHF AMS(R)S band, but for VDL Modes 2 and 3 only); ARINC/ATA Comments at 23 (stating that "[i]f the FAA determines that further rule changes are needed to accommodate VDL Mode 3 for air traffic services," ARINC and ATA would support the adoption of such rules); Rockwell Collins Comments at 7 (stating that it supports accommodating TDMA emissions, but also believes the Commission could forego emission-by-emission determinations and simply "permit all waveforms as long as the transmitters meet the other applicable technical specifications").

<sup>106</sup> However, elsewhere we invite comment on a number of proposals by commenters regarding emission types, and we will therefore also invite further comment on the question of what, if any, additional rule amendments are required to fully accommodate VDL-3 and other systems employing TDMA technology. See ¶ 79, *infra*.



FAA flight service stations (FSS), and (b) the 121.6-121.95 MHz band may be used for general air traffic control communications. Both the FAA and ARINC/ATA support allowing the FAA to use the 121.975-122.675 MHz band for air traffic control as well as FSS.<sup>107</sup> In addition, the FAA also supports removing the restriction limiting the use of the sub-band 121.6-121.95 MHz to ground control communications so that it may be used for general air traffic control communications.<sup>108</sup> The FAA says removing the existing limitations on use of these frequencies will enhance the ability of the FAA to find frequencies for new requirements.<sup>109</sup> We agree that permitting the FAA to use the 121.975-122.675 MHz and 121.6-121.95 MHz frequencies for general air traffic control communications will serve the public interest by enhancing the FAA's flexibility to redistribute spectrum resources under its control in response to changing demand.<sup>110</sup> We note, however, that ARINC/ATA contends that any use of the 121.975-122.675 MHz band for air traffic control communications should be co-primary with, rather than secondary to, flight service station communications on these frequencies.<sup>111</sup> ARINC/ATA asserts that the ITU *Radio Regulations* as well as Annex 10 to the ICAO Convention prohibit air traffic control frequencies from being assigned on a secondary basis.<sup>112</sup> Given this concern, we think it appropriate to authorize FAA use of the 121.975-122.675 MHz band for air traffic control communications on a co-primary basis with FSS operations. Since these frequencies remain under exclusive FAA oversight, and the objective of these measures is to give the FAA greater discretion in managing these frequencies in response to changing operational needs, we conclude that according co-primary rather than secondary status to air traffic control communications in the 121.975-122.675 MHz band poses little risk of causing harmful interference to flight service station operations or creating a shortage of available spectrum for such operations.

## 2. Certification of Equipment for the Civil Reserve Air Fleet

34. *Background.* The Commission observed in the *NPRM* that aircraft of the Civil Reserve Air Fleet<sup>113</sup> or other civil aircraft may sometimes have a need to communicate with military facilities, which use frequencies outside of the civil aviation band, specifically in the 138-144 MHz and 150.05-150.8 MHz Government bands, and in the 148-149.9 MHz band, which is shared by Government and non-

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<sup>107</sup> FAA Comments at 1; ARINC/ATA Comments at 20.

<sup>108</sup> FAA Comments at 1.

<sup>109</sup> *Id.*

<sup>110</sup> See Letter, dated February 10, 2003, from D'wana R. Terry, Chief, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, to Fredrick R. Wentland, Acting Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration (granting waiver of Section 87.173 of the Commission's Rules to permit the FAA to use frequency 122.275 MHz for air traffic control communications, in order to reduce congestion on air traffic control channels).

<sup>111</sup> ARINC/ATA Comments at 20.

<sup>112</sup> *Id.* ARINC/ATA specifically notes that the *Radio Regulations* and Annex 10 specify that flight safety messages, which include air traffic movement and immediate operational control messages, can be secondary only to distress ("Mayday") urgency messages, or to radio direction finding. *Id.* (citing ITU Radio Reg. S44.1; ICAO Annex 10, vol. II, ¶ 5-1.8).

<sup>113</sup> The Civil Reserve Air Fleet is comprised of selected aircraft from U.S. airlines, which are contractually committed to support Department of Defense airlift requirements in national emergencies. The Civil Reserve Air Fleet has three main categories or segments: international, national and aeromedical evacuation. Assignment of aircraft to a particular segment depends on the nature of the requirement and the performance characteristics needed. See United State Air Force Fact Sheet on the Civil Reserve Air Fleet, at [http://www.af.mil/news/factsheets/Civil\\_Reserve\\_Air\\_Fleet.html](http://www.af.mil/news/factsheets/Civil_Reserve_Air_Fleet.html).

Government users.<sup>114</sup> Currently, however, VHF aviation transmitters can be certified under the Part 87 Rules only if they are designed to operate exclusively on frequencies in the civil aviation band.<sup>115</sup> Consequently, it has been necessary to grant waivers of the Commission's Rules to permit certification of aviation transmitters capable of operating in both the civil aviation band and the military radio bands.<sup>116</sup> Observing that requiring the use of waivers to obtain equipment certification is inefficient and resource-intensive, the Commission proposed in the *NPRM* to amend its Rules to allow the certification of radios that operate both inside and outside the civil aviation bands, with the qualification that Commission certification will only apply to use inside the civil aviation band.<sup>117</sup>

35. *Discussion.* We will amend Section 87.147 of the Commission's Rules to provide for certification of equipment capable of operating in both the civil aviation band and the military radio bands.<sup>118</sup> We believe that adopting this measure will enhance air safety, most significantly by facilitating communications between civil aircraft and military air traffic controllers in emergencies.<sup>119</sup> The Commission has previously determined that the potential for misuse of these extended frequency range transceivers is slight, and that there is not a significant threat of interference from such transceivers.<sup>120</sup> Allowing this equipment to be authorized without requiring that it be subject to a waiver process will relieve both applicants and Commission staff of an unnecessary administrative burden, and will expedite the authorization process. We emphasize that this rule change addresses equipment certification only. As the Commission observed in the *NPRM*,<sup>121</sup> other agencies are responsible for granting authorization to operate outside of the civil aviation band, and nothing we do herein should be construed as authorizing operations outside of the civil aviation band in the United States under our Part 87 Rules.

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<sup>114</sup> *NPRM*, 16 FCC Rcd at 19017 ¶ 28. This may occur when the aircraft serve a military transport role in emergency conditions, or use military airfields in connection with the transport of "VIP" passengers, such as heads of state, or for emergency landings. *Id.*

<sup>115</sup> See 47 C.F.R. §§ 87.173(b), 87.475(b)(4)-(5).

<sup>116</sup> See, e.g., Rockwell Collins, Inc., *Order*, 14 FCC Rcd 3340, 3343 ¶ 6 (WTB PSPWD 1999).

<sup>117</sup> *NPRM*, 16 FCC Rcd at 19017 ¶ 29. We note that the Chief, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, has granted a waiver to Rockwell Collins so that it may obtain equipment certification of transceivers capable of transmitting on frequencies outside the civil aviation band, subject to the Commission's resolution of this issue in the instant rulemaking. See Rockwell Collins, Inc., Request for Waiver Concerning Certification of Aviation Transceivers Capable of Transmitting Outside the 108-137 MHz Civil Aviation Band and Waiver of Section 87.173(b) of the Commission's Rules Governing Assignable Carrier Frequencies in the Aviation Services, *Order*, 18 FCC Rcd 1509 (WTB PSPWD 2003).

<sup>118</sup> See Section 87.147(f) in Appendix A, *infra*. We will not require applicants to certify that the equipment is to be used for the Civil Reserve Air Fleet. Although we have titled this section of the *Report and Order* "Certification of Equipment for the Civil Reserve Air Fleet" to mirror the title of the relevant section in the *NPRM*, the Commission did not propose in the *NPRM* to limit authorization of extended frequency range transceivers to use in the Civil Reserve Air Fleet, and Rockwell Collins has not explained why it supports such a limitation. Although it is conceivable that such a restriction might reduce the risk of unauthorized transmissions outside the civil aviation band, we believe that such risk is slight. We intend to revisit this issue if future experience suggests that the Civil Reserve Air Fleet limitation may be warranted.

<sup>119</sup> See Rockwell Collins Comments at 8.

<sup>120</sup> See Rockwell Collins, Inc., *Order*, 14 FCC Rcd 3340, 3345 ¶ 10 (WTB PSPWD 1999); see also Rockwell Collins Comments at 7 (authorization of such extended frequency range transceivers will not cause harmful interference to other users of the 137-152 MHz band because aeronautical VHF communications are highly regulated and are restricted to communications with authorized ground stations, and flight crews are trained to select frequencies only from current published frequency tables, charts and databases).

<sup>121</sup> See *NPRM*, 16 FCC Rcd at 19017 ¶ 29.

### 3. Certification of Equipment Requiring an FAA Showing of Compatibility with the National Airspace System

36. *Background.* Under Section 87.147(d) of the Commission's Rules, an applicant seeking Commission certification of equipment that is intended to operate in any of the frequency bands specified in Section 87.147(d)(3) must notify the FAA of the filing of the certification application.<sup>122</sup> The applicant also must provide the FAA with detailed information about the equipment for which the certification is sought, and include a copy of the notification letter to the FAA with the application for Commission certification.<sup>123</sup> The rule further provides that the Commission will not act on the certification application for twenty-one days after the application is filed, in order to afford the FAA an opportunity to determine whether the equipment is compatible with the NAS.<sup>124</sup> If the FAA determines that the equipment is not compatible with the NAS, it can submit an objection to certification of the equipment.<sup>125</sup> In the *NPRM*, the Commission proposed to streamline this process by requiring equipment certification applications to include an FAA determination addressing the equipment's compatibility with the NAS.<sup>126</sup> The Commission tentatively concluded that requiring applicants to secure an FAA determination of the equipment's compatibility with the NAS before they file the application for FCC certification of the equipment would "provide applicants with increased participation in the certification process, streamline the certification process, reduce the FAA's and the Commission's administrative workload, and reduce the time necessary to obtain certification."<sup>127</sup>

37. *Discussion.* After consideration of the comments, we conclude that we should modify the current process and rules to eliminate the 21-day waiting period and to provide that the Commission will not act on an application until it receives an FAA determination of whether it objects to the subject equipment's certification. This solution addresses the interest of private sector commenters in avoiding any sequential review that might prolong the equipment certification process.<sup>128</sup> Our eliminating the twenty-one day period will not extend the process, because, contrary to what appears to be at least one commenter's understanding,<sup>129</sup> the rule prescribes a minimum waiting period before the Commission can act upon an application. It does not set a hard-and-fast deadline by which the FAA must comment on, or object to, the application. Further, it does not prevent the Commission from considering FAA comments or objections that are submitted more than twenty-one days after the application was filed, and it does not prevent the Commission from withholding a decision on the application until it does receive an affirmative representation from the FAA that the equipment is either compatible or incompatible with the NAS. In practice, the staff has observed a routine procedure of waiting until it first learns of the FAA's assessment before applications for equipment certification are granted. The fact that commenters apparently are generally pleased with the existing speed of processing such applications suggests that

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<sup>122</sup> 47 C.F.R. § 87.147(d).

<sup>123</sup> *Id.*

<sup>124</sup> 47 C.F.R. § 87.147(d)(2).

<sup>125</sup> *Id.*

<sup>126</sup> *NPRM*, 16 FCC Rcd at 19018 ¶ 31.

<sup>127</sup> *Id.*

<sup>128</sup> ARINC/ATA, Rockwell Collins, and Boeing argue that requiring sequential FAA and FCC review would not streamline the process; rather, it would prolong the certification process. ARINC/ATA Comments at 26; Rockwell Collins Comments at 8-9; Boeing Comments at 15-16. Rockwell Collins adds, "In an economy where getting products to market quickly is extremely important, allowing simultaneous review by the FAA and FCC will reduce the total time to processing an equipment certification application." Rockwell Collins Comments at 9.

<sup>129</sup> ARINC/ATA states that the twenty-one day period specified in Section 87.147(d)(2) ensures that applicants can reasonably estimate the amount of time the application process will take. ARINC/ATA Comments at 26.

continuation of the practice already followed by the staff should not be problematic.<sup>130</sup> In addition, our elimination of the twenty-one day waiting period removes an obstacle to potential speedier processing of some applications. We also believe that by clarifying what our practice has been in fact, and will continue to be, *i.e.*, to wait to hear from the FAA on the NAS compatibility question before acting on a certification application, we address the concern that prompted the FAA to support a change to the existing process.<sup>131</sup>

38. We will also amend 47 C.F.R. § 87.147(d)(3) to list additional particular frequency bands for which related equipment certification is subject to FAA notification. Section 87.147(d) requires that an applicant for certification of equipment intended for transmission in frequencies listed in Section 87.147(d)(3) notify the FAA of the filing of an equipment certification application.<sup>132</sup> Our amendment will ensure that all equipment designed to operate in the NAS is subject to FAA review for compatibility with the NAS.<sup>133</sup> Prior to this amendment, Section 87.147(d)(3) omitted several frequency bands that may be used for operation in the NAS from its list of frequency bands subject to the FAA review requirement.<sup>134</sup> The omission of these frequency bands from the existing rule was an oversight. We observe that no commenter opposed this FAA proposal.<sup>135</sup>

#### **E. Amending License Terms of Non-Aircraft Stations**

39. *Background.* In the *NPRM*, the Commission proposed to extend the license terms of non-aircraft station licenses in the Aviation Radio Service from five years to ten years.<sup>136</sup> The Commission reasoned that this would provide non-aircraft stations with the same license term as aircraft stations<sup>137</sup> and with similar stations in other services, would benefit licensees by effectively halving their application fees and the costs of filing license renewal applications, and would reduce the costs incurred by the Commission in processing renewal applications.<sup>138</sup>

40. *Discussion.* We will extend the license term for non-aircraft stations to ten years, as proposed.<sup>139</sup> Extending the license term for non-aircraft stations to ten years is consistent with other

<sup>130</sup> See generally ARINC/ATA Comments at 26; Rockwell Collins Comments at 8-9; Boeing Comments at 15-16.

<sup>131</sup> The FAA contends that a major drawback in the current process of simultaneous review of the equipment by the two agencies is the possibility of the FAA not receiving notification or otherwise becoming aware of the application to the FCC for certification. FAA Comments at 1, 4. It believes that the proposed revision of the process, if adopted, would address this problem. *Id.* at 1. The FAA adds that “[s]ince the FAA is to review each application in the subject frequency bands even under the current process, there should be no additional delay in processing and no additional burden to the FAA.” *Id.* at 4.

<sup>132</sup> 47 C.F.R. § 87.147(d).

<sup>133</sup> See FAA Comments at 14-15.

<sup>134</sup> The previously omitted frequency bands that are now being added to Section 87.147(d)(3) are 90-110 kHz, 190-285 kHz, 325-435 kHz and 1545-1559 MHz.

<sup>135</sup> It should be noted that we also believe that better coordination between the FCC and the FAA would improve the equipment certification process. Therefore, we intend, in consultation with the FAA, to begin exploring the feasibility of creating a data link between the agencies that would reduce our reliance on the applicants to provide timely notification to the FAA and perhaps automate the process by which the FAA provides its determinations of NAS compatibility to the Commission.

<sup>136</sup> *NPRM*, 16 FCC Rcd at 19018 ¶ 32.

<sup>137</sup> See 47 C.F.R. § 87.27(a).

<sup>138</sup> *NPRM*, 16 FCC Rcd at 19018 ¶ 32.

<sup>139</sup> ARINC/ATA supports extending the license term because it will reduce the administrative burden on licensees and the Commission of filing and processing renewal applications. ARINC/ATA Comments at 19. However, the

Commission actions in recent years extending license terms in many services to ten years.<sup>140</sup> In addition, we believe our action should provide some of the same types of public interest benefits – a more stable regulatory environment, incentives for investment in licensed facilities, additional flexibility for licensees, and reduced administrative burdens for licensees and the Commission alike – that warranted ten-year license terms in other services. It also promotes consistency in our licensing processes by conforming the license term of non-aircraft stations with that of aircraft stations<sup>141</sup> and coast stations, which provide service in the Maritime Radio Services that is functionally similar to that provided by non-aircraft stations in the Aviation Radio Service.<sup>142</sup> The ten-year license term will apply prospectively to licenses issued or renewed after the effective date of the amended rule. This action does not extend existing license terms, and thus does not affect the date by which incumbent licensees must file their next renewal applications.

#### F. Amending Construction Requirements of Non-Aircraft Stations

41. In the *NPRM*, the Commission proposed to extend the time – from eight months to one year – by which newly authorized unicom and radionavigation land stations must be placed in operation.<sup>143</sup> The Commission tentatively concluded that the longer construction period would reduce the number of requests for extensions of time to construct a station, and would otherwise simplify regulatory requirements applicable to these licensees while decreasing administrative burdens on both licensees and the Commission. This approach, the Commission observed, also would be consistent with the Commission's recent actions regarding construction requirements in other services.<sup>144</sup> We received no comments on this proposal. Accordingly, we will adopt the proposal to amend Section 87.45 of the Rules<sup>145</sup> to extend the construction period for unicom stations and radionavigation land stations from eight months to one year. We believe this action will not significantly delay the initiation of operations by newly authorized unicom stations and radionavigation land systems. The new construction period has

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FAA opposes the proposal, recommending that the five-year license term be retained, perhaps with an adjustment to the licensing fee, but does not elaborate. FAA Reply Comments at 1.

<sup>140</sup> See, e.g., 1998 Biennial Regulatory Review – 47 C.F.R. Part 90 – Private Land Mobile Radio Services, *Report and Order and Further Notice of Proposed Rule Making*, WT Docket No. 98-182 and PR Docket No. 92-235, 15 FCC Rcd 16673, 16678 ¶ 10 (2000) (*Part 90 Biennial Review*) (extending the license term for all private land mobile radio licenses to ten years); Reorganization and Revision of Parts 1, 2, 21, and 94 of the Rules to Establish a New Part 101 Governing Terrestrial Microwave Fixed Radio Services, *Report and Order*, WT Docket No. 94-148 and CC Docket No. 93-2, 11 FCC Rcd 13449, 13459 ¶ 20 (1996) (extending the license term for all Part 101 fixed microwave service licenses to ten years); Amendment of Parts 80, 87 and 94 of the Commission's Rules Governing the Private Radio Services, *Report and Order*, PR Docket No. 93-39, 8 FCC Rcd 8716 ¶ 3 (1993) (extending the license term for ship and aircraft station licenses to ten years); Amendment of Part 95 of the Commission's Rules to Provide Regulatory Flexibility in the 218-219 MHz Service, *Report and Order and Memorandum Opinion and Order*, WT Docket No. 98-169, 15 FCC Rcd 1497, 1516 ¶ 27 (1999) (extending the license term for all 218-219 MHz Service licenses to ten years); Policy and Rules for the Direct Broadcast Satellite Service, *Report and Order*, IB Docket No. 98-21, 17 FCC Rcd 11331, 11351 ¶ 39 (2002) (extending the license term for non-broadcast Direct Broadcast Satellite Service licenses to ten years).

<sup>141</sup> See 47 C.F.R. § 87.27.

<sup>142</sup> See 47 C.F.R. § 80.25(b) (as amended by Amendment of the Commission's Rules Concerning Maritime Communications, *Fourth Report and Order and Third Further Notice of Proposed Rule Making*, PR Docket No. 92-257, 15 FCC Rcd 22585 (2000) (*Maritime Fourth Report and Order*)).

<sup>143</sup> *NPRM*, 16 FCC Rcd at 19018 ¶ 33. See 47 C.F.R. § 87.45. Radionavigation land stations are land stations that assist with navigation using radiodetermination. See 47 C.F.R. § 87.5.

<sup>144</sup> See *Part 90 Biennial Review*, 15 FCC Rcd at 16679 ¶ 12; *Maritime Fourth Report and Order*, 15 FCC Rcd at 22600 ¶ 27.

<sup>145</sup> 47 C.F.R. § 87.45.

prospective effect only, and does not extend the construction deadline for any existing licenses. Accordingly, the one-year construction period will apply only to unicom and radionavigation land licenses issued after the effective date of this rule amendment. An eight-month construction period still applies to all existing licenses and will continue to apply to all licenses issued before the effective date of this rule amendment. As before, licensees of unicom stations and radionavigation land stations who seek an extension of time to construct must meet the requirements set forth in Section 1.946 of the Commission's Rules.<sup>146</sup>

### G. Additional Emission Types

42. *Background.* Emission type J2D<sup>147</sup> is not authorized under Part 87 of the Commission's Rules, but pursuant to a series of waivers, ARINC has been using it for enroute high frequency (HF) communications since 1996 to facilitate ARINC's participation in the development of a worldwide HF datalink system. Given the apparent absence of any problems stemming from these operations, the Commission proposed in the *NPRM* to add J2D as an acceptable data emission type for enroute HF communications.<sup>148</sup> The Commission reasoned that including J2D as an acceptable emission type would reduce the administrative burden of authorizing the use of J2D through waivers only, and would also facilitate implementation of the worldwide HF datalink system.<sup>149</sup> The Commission invited comment on this proposal and, more generally, on whether the Commission should continue to designate specific emission types on aviation frequencies that are not shared with other services, or instead allow licensees to utilize any emission type in these frequencies if the transmitters meet the other applicable technical specifications.<sup>150</sup>

43. *Discussion.* We will adopt the proposal to add J2D as a permissible emission type for enroute HF communications. We believe this action will enhance licensee flexibility, facilitate development and implementation of the worldwide HF datalink system, and promote administrative efficiency by obviating the need to resort to the waiver process in order to authorize use of J2D.<sup>151</sup> Since ARINC has been using J2D since 1996, we have empirical support for our conclusion that authorizing the use of this emission type under Part 87 will not result in harmful interference.<sup>152</sup> In addition, we note that all of the commenters addressing this proposal support it.

44. In addition to adding J2D, we will include the emission type A2D in Section 87.131 of the Commission's Rules<sup>153</sup> as an authorized emission type for VHF aeronautical enroute and fixed stations and for aircraft stations. As noted by ARINC/ATA,<sup>154</sup> this emission designator is already listed as a

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<sup>146</sup> 47 C.F.R. § 1.946.

<sup>147</sup> Acceptable emission types are set forth at 47 C.F.R. § 87.131 using codes defined at 47 C.F.R. § 2.201.

<sup>148</sup> *NPRM*, 16 FCC Rcd at 19019 ¶ 34.

<sup>149</sup> *Id.*

<sup>150</sup> *Id.*

<sup>151</sup> The FAA joins ARINC/ATA in supporting the addition of emission type J2D for HF operations. FAA Comments at 1; ARINC/ATA Comments at 25.

<sup>152</sup> See, e.g., Amendment of Section 90.20(e)(6) of the Commission's Rules to Revise the Authorized Duty Cycle on 173.075 MHz, *Report and Order*, WT Docket No. 01-97, 17 FCC Rcd 16938, 16944 ¶ 13 (2002) (amending Rules to permit increased duty cycle for stolen vehicle recovery systems, and noting that operations using the new duty cycle pursuant to waiver had produced no reports of interference).

<sup>153</sup> 47 C.F.R. § 87.131.

<sup>154</sup> ARINC/ATA Comments at 25.

permissible class of emission in Section 87.137(a) of the Rules.<sup>155</sup> We therefore view the addition of A2D to Section 87.131 as non-controversial. We take no action on ARINC/ATA's related suggestion to delete all references to emission type A9W as obsolete,<sup>156</sup> because we are not persuaded on this record that A9W is indeed obsolete and, in any event, we see no significant regulatory objective to be served by deletion of this emission type.

45. Rockwell Collins also recommends that the Commission abandon its existing approach of authorizing emission types one by one and simply include language "to permit all waveforms as long as the transmitters meet the other applicable technical specifications."<sup>157</sup> Rockwell Collins adds that if this approach is adopted, "the impacts of interference, particularly ultra-wideband interference ... that may raise the overall spectrum noise floor, [must] be clearly understood."<sup>158</sup> Inmarsat likewise favors amendment of the Part 87 Rules to authorize the use of any emission type if other requirements are met.<sup>159</sup> Eliminating the designation of specific emission types would, in Inmarsat's view, "accommodate the rapid advances in digital communications that result in the introduction of new emission types into satellite communications systems on a regular basis."<sup>160</sup> Although we believe there may be merit to this proposal, we also believe that the potential ramifications of this proposal for the interference environment in the VHF aeronautical spectrum counsel against its adoption on the basis of the current record. We believe the record should be augmented on the question of what additional technical specifications, if any, may be needed to ensure that the authorization of all emission types does not result in increased interference, especially interference to safety-related communications. We discuss this proposal further, and seek additional comment on it, in the *FNPRM*.<sup>161</sup>

#### H. Removal of References to the Civil Air Patrol (CAP)

46. *Background.* Part 87 contains several references to the Civil Air Patrol (CAP).<sup>162</sup> In the *NPRM*, the Commission questioned whether it was necessary to retain these references. In this connection, it noted that, at present, there are no outstanding licenses for CAP stations, the Commission has no formal relationship with CAP (which is authorized by the Air Force and the National Telecommunications and Information Administration (NTIA)), and there is no apparent need to carve out special licensing provisions for CAP stations.<sup>163</sup>

47. *Discussion.* The FAA, the sole commenter to address this issue, supports deleting all Part 87 references to the CAP.<sup>164</sup> We conclude that, for the reasons stated in the *NPRM*, there is no continuing regulatory purpose to be served by maintaining the references to the CAP, and we will, therefore, delete them. Moreover, those frequencies that had been listed as CAP frequencies in Section 87.173(b) of our Rules will be reserved, and we request comment in the *FNPRM* on reallocoting them for other Aviation

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<sup>155</sup> 47 C.F.R. § 87.137.

<sup>156</sup> ARINC/ATA Comments at 25.

<sup>157</sup> Rockwell Collins Comments at 9.

<sup>158</sup> *Id.*

<sup>159</sup> Inmarsat Reply Comments at 1.

<sup>160</sup> *Id.*

<sup>161</sup> *See* ¶ 78, *infra*.

<sup>162</sup> Specifically, the CAP is the subject of Subpart R of Part 87, 47 C.F.R. §§ 87.501-87.503, and is also referenced in 47 C.F.R. §§ 87.5, 87.25(f), 87.133(c), 87.145(c), 87.169, 87.171, 87.173(b), and 95.655(a).

<sup>163</sup> *NPRM*, 16 FCC Rcd at 19019 ¶ 35.

<sup>164</sup> FAA Comments at 2.

Radio Service uses.<sup>165</sup>

### I. Addition of Station Class Codes

48. *Background.* The Part 87 Rules use two- or three-character codes to classify the different types of stations in the Aviation Radio Service.<sup>166</sup> In the *NPRM*, the Commission expressed a belief that it should update the station class codes to reflect advances in ground control technology and changes in airport procedures.<sup>167</sup> Specifically, the Commission proposed to add five additional station class codes:<sup>168</sup> (a) Remote Communications Outlet (RCO),<sup>169</sup> (b) Ground Communication Outlet (GCO),<sup>170</sup> (c) Ramp Control (RPC),<sup>171</sup> (d) RADAR/TEST (RLD),<sup>172</sup> and (e) Radio Navigation Land/DME (RNV).<sup>173</sup> The Commission reasoned that adding these five proposed new station class codes would have the Part 87 station classification scheme conform to terms of art used in the aviation community, increase the accuracy of its licensing database, and enable the Commission to better coordinate its licensing activities with the NTIA's Interdepartment Radio Advisory Committee (IRAC)<sup>174</sup> and the FAA by adding a greater level of detail to the coordination process.<sup>175</sup> In addition to seeking comment on the proposed new station class codes, the Commission solicited comment on the broader issue of whether it should eliminate station class codes from Part 87, and utilize them solely within the application process.<sup>176</sup> The Commission noted that such an approach is used for the Private Land Mobile Radio (PLMR) Services; although station class codes are employed in the filing and processing of PLMR applications, they are not codified in the Commission's Part 90 Rules. In the *NPRM*, the Commission tentatively concluded that removing the station class codes from Part 87 "would not only streamline our rules, but would also simplify the task of maintaining a technologically current list of station codes by allowing us to update or otherwise modify the station class code list as necessary without having to go through a formal rule making process each time."<sup>177</sup>

49. *Discussion.* We will add the five new station class codes proposed in the *NPRM*. Adding these five station class codes will permit greater precision in classifying and coordinating these stations.

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<sup>165</sup> See ¶ 84, *infra*.

<sup>166</sup> The station class codes are listed in 47 C.F.R. § 87.171.

<sup>167</sup> *NPRM*, 16 FCC Rcd at 19019-20 ¶ 36.

<sup>168</sup> *Id.*

<sup>169</sup> An RCO is an unmanned communications facility remotely controlled by air traffic personnel.

<sup>170</sup> A GCO is an unstaffed, remotely controlled, ground-to-ground communications facility.

<sup>171</sup> An RPC is a facility specifically authorized to control the movement of aircraft in the defined ramp or apron area of an airport.

<sup>172</sup> An RLD is a land station operating radar or testing the operations of radar.

<sup>173</sup> An RNV is equipment (airborne and ground) used to measure the slant range distance from the Distance Measuring Equipment (DME) navigational aid.

<sup>174</sup> The IRAC is composed of representatives appointed by twenty-three member federal departments and agencies. A representative appointed by the Commission to serve in that capacity effects liaison between the IRAC and the FCC. The IRAC serves in an advisory capacity pertaining to the allocation, management, and use of the radio spectrum. The IRAC advises the Assistant Secretary for Communications and Information, U.S. Department of Commerce, and reports to the Deputy Associate Administrator, Office of Spectrum Management.

<sup>175</sup> *NPRM*, 16 FCC Rcd at 19020 ¶ 36.

<sup>176</sup> *Id.*

<sup>177</sup> *Id.*



We note that this proposal is unopposed by any commenter in the proceeding.<sup>178</sup> As proposed in the *NPRM*, we will begin licensing new stations using these new codes on the effective date of these rule changes, and will bring existing stations into conformance with these new station codes as we receive renewal or modification applications.<sup>179</sup> We decline at this time to adopt a new station class code for Universal Access Transceiver (UAT) stations, as proposed by the FAA, because we have determined to request further comment on the FAA and UPS proposals to authorize UAT operations on the frequency 978 MHz.<sup>180</sup> We will revisit this issue after reviewing the comments submitted in response to the *FNPRM*. We conclude, after further consideration of whether to remove station class codes from Part 87 and refer to them solely in the licensing process, that the station class codes should remain codified in Part 87.<sup>181</sup> The Commission suggested in the *NPRM* that removing the station class codes would both streamline Part 87 and facilitate future updating of the codes by obviating the need for rulemaking proceedings. However, for two reasons, we now believe that removing station class codes from Part 87 would actually add to the complexity of Part 87. First, the class codes provide a short-hand description of types of stations which would have to be replaced by a lengthier description of the stations if the codes are removed. Second, the frequency table in Section 87.173<sup>182</sup> would have to be expanded significantly to ensure clarity as to what types of stations are authorized on particular frequencies. Although removing the station class codes from Part 87 potentially would offer the advantage of avoiding a need to amend Part 87 whenever the class codes are changed, augmented or deleted, we believe that the overall balance of considerations favors keeping the class codes in Part 87.

#### J. Differential Global Positioning System (DGPS)

50. *Background.* The Global Positioning System (GPS) is a radio navigation system with global coverage that utilizes a constellation of twenty-four satellites to provide users, both military and civilian, with real-time location, velocity and timing information. DGPS represents an advancement of GPS technology that improves the positioning accuracy that can be obtained by GPS receivers, by adjusting for positioning errors caused by, for example, signal bounce or signal noise. DGPS uses fixed transmitting stations, which calculate differences in known locations with the position the GPS satellite system is indicating, and send this “differential” information via radio link to mobile units. DGPS can be provided from stations on the ground, through Ground Based Augmentation Systems (GBAS),<sup>183</sup> and via satellite, through Space Based Augmentation Systems (SBAS).<sup>184</sup> In 1999, at the FAA’s request, the Commission

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<sup>178</sup> The FAA supports adding the five proposed station class codes (FAA Reply Comments at 1), plus another new station class code or codes for Universal Access Transceiver (UAT) stations. FAA Comments at 15 (supporting multiple station class codes for ground, airborne, and vehicular UAT stations). As discussed in greater detail elsewhere, the FAA and UPS proposals to add UAT stations to the station class codes are made in conjunction with their proposals to amend the Rules to accommodate UAT operations on the frequency 978 MHz. *See* ¶ 77, *infra*.

<sup>179</sup> *NPRM*, 16 FCC Rcd at 19020 ¶ 36.

<sup>180</sup> *See* ¶ 77, *infra*.

<sup>181</sup> The FAA, joined by UPS, also supports removing station class codes from Part 87 and referring to them only in the licensing process. *See* FAA Comments at 15; *see also* UPS Comments at 3. The FAA also states in its comments that “Station Classes are an integral part of the Government Master File records and cannot totally be eliminated for ground stations. If the FCC provides the type of service on proposals for ground equipment ... the FAA can add the appropriate station class to the NTIA record.” FAA Comments at 2.

<sup>182</sup> 47 C.F.R. § 87.173(b).

<sup>183</sup> The FAA operates a GBAS called a Local Area Augmentation System (LAAS), which provides aircraft with increased location accuracy (to within ten meters). LAAS transmitters are placed within airports to provide specific GPS correction information for the landing area.

<sup>184</sup> The FAA also operates an SBAS called a Wide Area Augmentation System (WAAS). WAAS is composed of 24 ground reference stations in the United States. The SBAS stations compute their GPS-derived locations and

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amended Part 87 of its Rules to authorize the operation of DGPS in the 112-118 MHz band.<sup>185</sup> In 2000, the NTIA permitted DGPS to be used by the Government for aircraft navigation on a primary basis in the 108-117.975 MHz, 1559-1610 MHz, and 5000-5150 MHz bands.<sup>186</sup> Later that year, the FAA petitioned the Commission to allow the use of DGPS throughout the 108-117.975 MHz band.<sup>187</sup>

51. In response to the earlier proposals and actions of the NTIA and the FAA, in the *NPRM*, the Commission proposed to add a new footnote, US343, to the Commission's Table of Frequency Allocations,<sup>188</sup> to read as follows:

US343 Differential-Global-Positioning-System (DGPS) Stations may be authorized on a primary basis in the bands 108-117.975 MHz and 1559-1610 MHz for the specific purpose of transmitting DGPS information intended for aircraft navigation.<sup>189</sup>

The Commission further proposed to expand the authorization for DGPS from the 112-118 MHz band to the 108-117.975 MHz on a primary basis.<sup>190</sup> In addition, the Commission proposed to change the designation of DGPS as a developmental technology, and instead license DGPS systems on a routine non-developmental basis.<sup>191</sup> Although the Commission also proposed to authorize DGPS operations in the 1559-1610 MHz band,<sup>192</sup> it tentatively concluded in the *NPRM* that it should not authorize the use of DGPS in the 5000-5150 MHz band because the FAA has determined that DGPS use of the 5000-5150 MHz band is not technically feasible.<sup>193</sup>

52. *Discussion.* We believe that the widespread adoption of DGPS technology by the aviation community demonstrates that the developmental technology classification is no longer necessary,<sup>194</sup> and that it would serve the public interest to authorize DGPS operations on a non-developmental basis in the

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compare them with their surveyed locations. A master station receives the data and sends corrections to aircraft via INMARSAT satellites, over the L1 frequency used by GPS (1575.42 MHz).

<sup>185</sup> See Amendment of Part 87 of the Commission's Rules to Permit Automatic Operation of Aeronautical Advisory Stations (Unicom), *Report and Order*, WT Docket 96-1, 14 FCC Rcd 3722, 3730-31 ¶¶ 20-22 (1999); 47 C.F.R. 87.475(e). Licensees are also providing DGPS in this band pursuant to developmental authority. See 47 C.F.R. § 87.37.

<sup>186</sup> See NTIA's Manual of Regulations and Procedures for Federal Radio Frequency Management, January 2000 Edition, at 4-59, 4-94 (NTIA Manual).

<sup>187</sup> See Letter, dated September 19, 2000 from George K. Sakai, Program Director for Spectrum Policy and Management, FAA, to Magalie Roman Salas, Secretary, Federal Communications Commission.

<sup>188</sup> 47 U.S.C. § 2.106.

<sup>189</sup> *NPRM*, 16 FCC Rcd at 19021 ¶ 39. The Commission noted in the *NPRM* that a footnote of this kind is necessary because DGPS signals are data streams transmitted from either a fixed terrestrial location or from a satellite, while the 108-117.975 MHz band is allocated only to the Aeronautical Radionavigation Service. By definition, a data transmission is not considered a radionavigation application. Radionavigation must be accomplished by obtaining information by means of the propagation properties of radio waves. *Id.* at 19021 n.90 (citing 47 C.F.R. § 87.5).

<sup>190</sup> *Id.* at 19021-22 ¶ 40. Setting 118 MHz as the upper limit of the allocation constituted a rounding error which the Commission proposed to correct. *Id.*

<sup>191</sup> *Id.*

<sup>192</sup> *Id.* at 19022 ¶ 41.

<sup>193</sup> *Id.*

<sup>194</sup> See ARINC/ATA Comments at 21.

108-117.975 MHz and 1559-1610 MHz bands.<sup>195</sup> Authorizing DGPS operations in the 108-117.975 MHz and 1559-1610 MHz bands will promote aviation safety by permitting expanded use of the radio navigation technology that provides the most accurate positioning information.<sup>196</sup>

53. AFCCE, while supporting extension of the DGPS authorization to 108-112 MHz, recommends that the Commission mandate that the DGPS receivers operating in this spectrum be compliant with the ICAO standards.<sup>197</sup> AFFCE asserts that requiring compliance with the ICAO EMI requirements will promote safety. AFFCE and Hammett & Edison argue that without such a requirement, DGPS receivers will be more vulnerable to interference from FM and television broadcast stations, as a consequence of which the FAA may issue Air Navigation Hazard determinations that would lead to the Commission's denial of applications for new broadcast stations that would otherwise be in the public interest.<sup>198</sup> AFCCE and Hammett & Edison both propose that the Commission condition the extension of the DGPS authorization or otherwise take steps to require the FAA to change the computer model it uses to investigate broadcast-aviation electromagnetic compatibility issues, the Airspace Analysis Model (AAM), by incorporating the performance parameters of ICAO-compliant DGPS receivers.<sup>199</sup> The AAM needs to be changed, Hammett & Edison adds, because it already "grossly over-predicts interference" to Instrument Landing Systems (ILS) from FM broadcast stations due to the model's presumption of a "worst performing" aircraft receiver.<sup>200</sup> If the AAM were based on an ICAO-compliant receiver, Hammett & Edison posits, there would be an approximately 20 dB reduction in the projected EMI threat posed by the FM broadcast station. Hammett & Edison concludes that "the present FAA policy of basing its AAM on worst case aircraft radios results in unreasonable predictions of interference in modern receivers."<sup>201</sup>

54. After the comment period in this proceeding closed, the International Telecommunication Union (ITU) 2003 World Radiocommunication Conference (WRC-03) approved Resolution 413, titled "Use of the band 108-117.975 MHz by aeronautical services." The Resolution states, in relevant part, "that any additional aeronautical systems planned to operate in the frequency band 108-117.975 MHz shall as a minimum, meet the FM broadcasting immunity requirements contained in Annex 10 of the ICAO Convention on International Civil Aviation for existing aeronautical radionavigation systems operating in this frequency band."

55. Since the WRC has recognized the importance of compatibility between FM broadcasting systems and DGPS systems, and because we believe requiring compliance with the ICAO EMI requirements will promote safety, we adopt the ICAO immunity standards as required by Resolution 413.<sup>202</sup> Therefore, all DGPS receivers certified for use in the band 108-117.975 MHz must comply with

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<sup>195</sup> The FAA and ARINC/ATA unequivocally support authorization of DGPS on a non-developmental basis in the 108-117.975 MHz and 1559-1610 MHz bands. FAA Comments at 2; ARINC/ATA Comments at 20-21.

<sup>196</sup> Inasmuch as none of the commenters has challenged the FAA's determination that use of the 5000-5150 MHz band for DGPS is technically infeasible, or otherwise commented on our tentative conclusion regarding this matter, we will not authorize the use of DGPS in the 5000-5150 MHz band at this time.

<sup>197</sup> AFFCE Comments at 2.

<sup>198</sup> *Id.* at 2-3; Hammett & Edison Comments at 2-4.

<sup>199</sup> AFCCE Comments at 3; Hammett & Edison Comments at 2-3.

<sup>200</sup> Hammett & Edison Comments at 3.

<sup>201</sup> *Id.* at 4.

<sup>202</sup> The NTIA also supports an FCC requirement that DGPS receivers meet the ICAO standards for EMI immunity. See Letter, dated Sept. 12, 2002, from Frederick R. Wentland, Associate Administrator, Office of Spectrum Management, NTIA, to Ed Thomas, Chief, Office of Engineering and Technology, FCC at 1.

the sensitivity and intermodulation immunity requirements contained in ICAO Annex 10 paragraphs 3.6.8.2.2.8.2 and 3.6.8.2.2.8.3.<sup>203</sup> We also believe this requirement will promote the spectrum efficiency benefits envisioned in the Spectrum Policy Task Force Report.<sup>204</sup> Due to the decreased likelihood of FM broadcast stations posing an interference threat to aviation communications, we believe that this decision will also ease the burden on new broadcast stations, as stated by AFCCE and Hammett & Edison.<sup>205</sup>

## K. Aeronautical Advisory Station (Unicom) Issues

56. *Background.* Section 87.215(b) of the Commission's Rules<sup>206</sup> specifies that only one unicom will be authorized at an uncontrolled airport, *i.e.*, an airport which does not have either a control tower,<sup>207</sup> a control tower remote communications outlet (RCO),<sup>208</sup> or an FAA flight service station (FSS).<sup>209</sup> At controlled airports, *i.e.*, airports that have a full-time control tower, RCO, or FSS, multiple licensees may be authorized, but must share a single frequency, 122.950 MHz,<sup>210</sup> and may not transmit information regarding runway conditions, wind, or weather during the hours of operation of the controlling facility.<sup>211</sup>

<sup>203</sup> See Convention on International Civil Aviation (Chicago, IL, 7 Dec 1944) Annex 10 Volume I paragraphs 3.6.8.2.2.8.2 and 3.6.8.2.2.8.3, as amended.

<sup>204</sup> See *Spectrum Policy Task Force Report*, ET Docket No. 02-135, November 15, 2002; see also *Interference Immunity Performance Specifications for Radio Receivers, Notice of Inquiry*, ET Docket No. 03-65, 18 FCC Rcd 6039 (2003) (indicating that the Commission may rely to a greater extent on receiver standards, including in some cases mandatory receiver standards, to facilitate greater access to the spectrum resource).

<sup>205</sup> The EMI immunity requirements for DGPS receivers will be codified in a new Section 87.151 of the Commission's Rules, 47 C.F.R. § 87.151. In addition, we are adding language to proposed footnote US343 to the Section 2.106 Table of Frequency Allocations to mandate that DGPS receivers comply with Resolution 413. Relatedly, we will add to the International column of the Table of Frequency Allocations for the bands 108-117.975 MHz and 1559-1610 MHz the pertinent international footnotes adopted at WRC-03: footnote 5.197A for the band 108-117.975 MHz, and footnote 5.328B for the band 1559-1610 MHz.

<sup>206</sup> 47 C.F.R. § 87.215(b).

<sup>207</sup> Control towers provide air traffic control services to aircraft landing on, taking off from, and taxiing at an airport, as well as aircraft transiting an airport's traffic area. 47 C.F.R. § 87.417(a).

<sup>208</sup> An RCO is an aeronautical radio station at a small uncontrolled airport located near a large airport with a control tower (a controlled airport). The RCO is connected via landlines to the control tower (or other FAA control facility), and enables the FAA to provide air traffic services to more airports and aircraft than would normally be served by the control facility alone. See Amendment of the Aviation Services Rules (Part 87) to Provide for the Licensing of Control Tower Remote Communications Outlet Stations at Airports Without Control Towers, *Order*, RM-6791, 5 FCC Rcd 4550 (1990).

<sup>209</sup> A flight service station is part of a network of stations providing weather briefings and information on flight facilities, and monitoring the navigational radio net. John F. Welch, ed., Van Sickle's Modern Airmanship 737 (1981).

<sup>210</sup> 47 C.F.R. § 87.217(a)(1).

<sup>211</sup> 47 C.F.R. § 87.213(b)(1). In addition, some airports that do have an RCO or flight service station (FSS) are subject to the one unicom-per-airport limitation. The purpose of Section 87.215(b) is to prevent the licensing of more than one unicom at an uncontrolled airport in the interest of public safety. Accordingly, the rule's statement that the limitation does not apply to airports that have a control tower, FSS, or RCO is interpreted to mean only that the limitation does not apply to airports with a control tower, FSS, or RCO that effectively controls traffic at that airport. An airport with an FSS or RCO may nonetheless be deemed uncontrolled if the facility does not have the capacity to issue common traffic advisories. Multiple licensees are permitted only at those airports where there is no need for a specified common traffic advisory frequency (CTAF) or the air traffic control facility frequency serves as the CTAF. At airports with a unicom frequency as the published CTAF, the one unicom per airport limitation applies, even if the airport has an FSS or RCO. See *Resort Aviation Services, Inc., Hearing Designation Order*, WT

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The vast majority of airports in the United States are uncontrolled airports,<sup>212</sup> where unicoms are often the only available source of this critical safety-related information, and where the one licensee-per-airport restriction is applicable.

57. In the *NPRM*, the Commission sought comment on a number of issues pertaining to unicoms. First, the Commission sought comment on whether its designation of unicom frequencies as either MA (all aircraft) or MA2 (private aircraft only) should be eliminated because the apparent reluctance of licensees to request an MA2 frequency may be causing congestion on the MA frequencies.<sup>213</sup> Second, the Commission sought comment on whether Section 87.217(a) of the Rules<sup>214</sup> should be amended to require, rather than permit, unicom applicants to identify a specific frequency for which they seek to be licensed, in order to prevent situations in which the channel that produces maximum geographic co-channel separation is not the most appropriate channel for the particular airport.<sup>215</sup> In such situations, the Commission observed, the applicant petitions the Commission for another frequency, a step that consumes both the airport's and the Commission's time and resources.<sup>216</sup>

58. Finally, the Commission requested comment on how to choose among mutually exclusive applicants competing for the single unicom license available at an uncontrolled airport.<sup>217</sup> Currently, mutually exclusive unicom applications are designated for comparative hearing, a process that the Commission views as "lengthy, expensive and inefficient."<sup>218</sup> The Commission noted that, under the Balanced Budget Act of 1997, it is required to use competitive bidding to resolve mutually exclusive applications for initial licenses, unless licenses are covered by an exemption set forth in the statute.<sup>219</sup> However, as the Commission further noted, the statute also provides that the Commission has an obligation to avoid mutual exclusivity in proceedings if it is in the public interest to do so, by employing engineering solutions, negotiations, threshold qualifications, service regulations, and other appropriate means.<sup>220</sup> In the *NPRM*, the Commission indicated that unicoms at uncontrolled airports provide services that contribute to the safety of life, health, and property; there is no alternative spectrum for the provision of these services; and a government entity is typically one of the applicants when there are mutually

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Docket No. 02-179, 17 FCC Rcd 12816, 12816 n.2 (WTB PSPWD 2002) (citing Reorganization and Revision of Part 87 of the Rules Governing the Aviation Services, *Notice of Proposed Rule Making*, PR Docket No. 87-214, 2 FCC Rcd 4069, 4070 ¶¶ 11-12 (1987)).

<sup>212</sup> As of December 31, 2002, there were 19,572 airports in the United States. Control towers operated at 449 of these. There were 76 FAA flight service stations, of which 60 were automated flight service stations. FAA Administrator's Fact Book at 16, 34 (June 2003).

<sup>213</sup> *NPRM*, 16 FCC Rcd at 19023 ¶ 44.

<sup>214</sup> 47 C.F.R. § 87.217(a).

<sup>215</sup> *NPRM*, 16 FCC Rcd at 19023 ¶ 45.

<sup>216</sup> *Id.*

<sup>217</sup> *Id.* at 19023-25 ¶¶ 46-49.

<sup>218</sup> *Id.* at 19023 ¶ 46.

<sup>219</sup> *Id.* (citing 47 U.S.C. § 309(j)(2); Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended, *Report and Order and Further Notice of Proposed Rule Making*, WT Docket No. 99-87, 15 FCC Rcd 22709, 22715-17 ¶¶ 13-17 (2000) (*BBA Report and Order*)). Subsequent to the release of the *NPRM* in this proceeding, the Commission denied petitions for reconsideration of the *BBA Report and Order*. See Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended, *Memorandum Opinion and Order*, WT Docket No. 99-87, 17 FCC Rcd 7553 (2002), *petition for reconsideration pending*.

<sup>220</sup> 47 U.S.C. § 309(j)(6)(E).

exclusive unicom applications.<sup>221</sup> The *NPRM* therefore tentatively concluded that it would serve the public interest to adopt a licensing scheme that avoids mutually exclusive unicom applications, at least where government entities are involved.<sup>222</sup> The *NPRM* offered the following possible alternatives for avoiding mutual exclusivity: licensing on a first-come, first-served basis; providing a preference for airport owners; and providing incumbent unicom licensees with a renewal expectancy.<sup>223</sup>

59. *Discussion.* We will eliminate the MA/MA2 dichotomy for unicom licenses, and will require unicom applicants to specify the particular frequencies that they seek.<sup>224</sup> We believe that the MA/MA2 distinction no longer serves any significant regulatory objective. Further, our licensing experience indicates that classifying unicom frequencies as MA or MA2 is counterproductive. We believe that allowing all unicom frequencies to be used for all aircraft will provide more flexibility in the assignment of frequencies. Further, having unicom applicants specify a particular frequency also will increase applicants' flexibility. The Universal Licensing System<sup>225</sup> requires that applicants do so, and it has been the experience of our licensing staff that this procedure is more efficient, and has reduced the administrative burden on licensees and the Commission. Accordingly, elimination of the MA/MA2 dichotomy for unicom licenses is appropriate, as is our requiring unicom applicants to specify a particular frequency that they seek.

60. Given that unicom stations provide vital safety-related information to pilots at uncontrolled airports, we believe that they should be licensed on the basis of public safety criteria. Moreover, the public safety function of unicom suggests that the use of competitive bidding procedures would not be appropriate for unicom<sup>226</sup> because of the lag time that would result between the time an incumbent licensee terminates service and the time when a new licensee is selected (*i.e.*, after an auction is scheduled and conducted).<sup>227</sup> In addition, the fact that mutual exclusivity in the unicom context typically involves a government entity competing against a private company further militates against reliance on competitive bidding procedures to select licensees.

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<sup>221</sup> *NPRM*, 16 FCC Rcd at 19024 ¶ 48.

<sup>222</sup> *Id.*

<sup>223</sup> *Id.* at 19024 ¶ 49.

<sup>224</sup> ARINC/ATA argues that the congestion in the unicom frequencies stems primarily from the desire of unicom licensees and general aviation aircraft to operate on 100-kHz channels. ARINC/ATA Comments at 29. Both ARINC/ATA and the FAA believe that the answer to the frequency congestion problem is for the Commission to apply its existing rules to ensure that unicom frequencies are assigned with proper geographic separation. *Id.*; FAA Comments at 2.

<sup>225</sup> The Universal Licensing System, or ULS, is the Commission's electronic, interactive licensing system and database for wireless radio services. See Amendment of Parts 0, 1, 12, 22, 24, 26, 27, 80, 87, 90, 95, 97, and 101 of the Commission's Rules to Facilitate the Development and Use of the Universal Licensing System in the Wireless Telecommunications Services, *Report and Order*, WT Docket No. 98-20, 13 FCC Rcd 21027 (1998), *recon.* 14 FCC Rcd 11476 (1999).

<sup>226</sup> While the FAA, ARINC/ATA, and Boeing all oppose the use of competitive bidding procedures to license unicom, (FAA Comments at 2; ARINC/ATA Comments at 27-28; Boeing Comments at 16-20), they disagree on the licensing procedures that should be adopted in lieu of competitive bidding.

<sup>227</sup> *Cf.* Amendment of the Commission's Rules Concerning Maritime Communications, *Second Memorandum Opinion and Order and Fifth Report and Order*, PR Docket No. 92-257, 17 FCC Rcd 6685, 6712 ¶ 59 (2002) (Coast Guard opposes use of competitive bidding to assign high seas public coast station frequencies because of, *inter alia*, the possible delay in licensing a replacement if a licensee discontinues operations). This is so even though the Rules provide for licensing of unicom stations on an interim basis during the period after a unicom has been abandoned or ceased operating and before a new licensee is selected through the normal licensing process. See 47 C.F.R. § 87.215(c). There is no assurance that any party would be willing and able to operate the station on a stop-gap basis without assurance that it would ultimately win the regular license at auction.

61. The FAA believes that the hearing process remains a preferable means of choosing among mutually exclusive unicom applicants because competitive bidding is not a proper means of determining the licensee of a safety of life service.<sup>228</sup> However, we continue to believe that designating competing unicom applications for hearing is inefficient, time-consuming, costly, and unnecessary.

62. We decide to employ a system of preferences to avoid the problems that arise from mutual exclusivity. First, we will grant incumbent licensees a renewal expectancy that can be overcome only if a petitioner to deny license renewal can demonstrate that the licensee's performance has been inadequate. We reject Boeing's suggestion that renewal expectancies are not appropriate for unicoms.<sup>229</sup> We believe that granting renewal expectancies in this context has significant public interest benefits, such as promoting stability, licensee investment and long-term planning, which have been bases for the use of renewal expectancies in other contexts.<sup>230</sup> For this service, however, we will not require the renewal applicant to submit any showing in the absence of any pleadings opposing the renewal. Unless a petition to deny a license renewal is filed within thirty days of the filing of the renewal application, the renewal expectancy will vest, and the renewal application will be granted.<sup>231</sup> We anticipate that renewal applications will generally be challenged only when a government entity is dissatisfied with the performance of the incumbent licensee, since, as discussed below, only the government entity (or its designee) will be eligible for licensing if the challenge is successful and the license became available. Accordingly, challenges should be relatively infrequent, and should occur not because of commercial considerations, but because of safety concerns.<sup>232</sup>

63. We will limit eligibility for new unicom licenses to government entities or their designees.<sup>233</sup>

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<sup>228</sup> FAA Comments at 2.

<sup>229</sup> Boeing Comments at 21 n.45

<sup>230</sup> See, e.g., Amendments to Parts 1, 2, 27 and 90 of the Commission's Rules to License Services in the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands, *Report and Order*, WT Docket No. 02-8, 17 FCC Rcd 9980, 10008 ¶ 69 (establishing renewal expectancy for licensees operating in the spectrum transferred from Government to non-Government use); Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands, *Report and Order and Second Notice of Proposed Rulemaking*, ET Docket No. 95-183, PP Docket No. 93-253, 12 FCC Rcd 18600, 18626 ¶ 49 (1997) (establishing renewal expectancy for 39 GHz licensees); Amendment of the Commission's Rules to Establish New Personal Communications Services, *Second Report and Order*, GEN Docket No. 90-314, 8 FCC Rcd 7700, 7753 ¶ 130 (1993) (establishing renewal expectancy for PCS licensees).

<sup>231</sup> We will continue to require a renewal applicant to provide notice of the application to the owner of the airport and to all aviation service organizations located at the airport. See 47 C.F.R. § 87.215(d).

<sup>232</sup> In the event of a challenge, a hearing will be designated to determine whether the licensee has complied with the Commission's Rules and has provided "substantial service," which we define as service that is "sound, favorable, and substantially above a level of mediocre service which might just minimally warrant renewal." This "substantial service" showing, as we define it here, has been used in other services. See e.g., 47 C.F.R. § 101.1011(a) (establishing that a renewal expectancy for a Local Multipoint Distribution Service licensee hinges on the licensee's ability to demonstrate substantial service). This determination will be made by reference to the criteria that are now used in comparative hearings for unicom licenses, including: (1) location of the station in relation to the landing area and traffic patterns; (2) hours of operation; (3) personnel available to provide unicom service; (4) experience of applicant and employees in aviation and aviation communications; (5) ability to provide information pertaining to primary and secondary communications as specified in § 87.257 of the Commission's Rules, 47 C.F.R. § 87.257; (6) proposed radio system including control and dispatch points; and (7) the availability of the radio facilities to other fixed-based operators. See, e.g., *Resort Aviation Services, Inc., Hearing Designation Order*, WT Docket No. 02-179, 17 FCC Rcd 12816 (WTB PSPWD 2002).

<sup>233</sup> ARINC/ATA supports reserving unicom frequencies at uncontrolled airports for municipalities and other government entities. ARINC/ATA Comments at 29. Similarly, Boeing favors according a preference to government and quasi-government entities. Boeing Comments at 21.

This public service eligibility nexus will ensure that new licensees have a vested interest in public safety, and will maximize the possibility that adequate ongoing resources will be made available for operating unicom stations in a manner that promotes public safety. Indeed, we anticipate that many, if not most, new licensees will be state or local government agencies with a public safety mission. For purposes of this requirement, the definition of eligible entities will follow the language of Section 337(f)(1)(B) of the Communications Act, which defines a class of eligible entities as “(i) ... State or local government entities; or (ii) ... nongovernmental organizations that are authorized by a governmental entity whose primary mission is the provision of [public safety] services ....”<sup>234</sup> This licensing system does not preclude a private sector entity, by virtue of its private sector status, from acquiring a new unicom license;<sup>235</sup> however, it will be able to do so only with the appropriate designation by the relevant state or local government agency.<sup>236</sup>

64. The licensing scheme that we adopt here has several virtues. It will be simple to administer, avoids mutual exclusivity, should keep churn in licensees at low levels, provides certainty, encourages investment in unicom stations, and, most importantly, provides for the selection of licensees in a manner that promotes air safety. We believe that government entities or their private sector entity designees have the incentives and access to resources that can best ensure that aviation safety is the paramount focus in unicom station operations. However, by the same token, we see no reason to oust incumbent licensees who have performed satisfactorily in the view of governmental authorities. Accordingly, our licensing rules will permit such incumbent licensees to retain their licenses unless and until some other party successfully challenges the adequacy of their respective performance as unicom licensees.

65. We decline to adopt a rule to provide a license preference for an airport owner in situations in which no government entity applies for the license.<sup>237</sup> We believe such a preference is unnecessary given that airport owners can be designated to be the license applicant by a government entity.<sup>238</sup> We also decline to adopt a requirement for applicants to agree to a sharing mechanism in situations in which licensing preferences cannot resolve problems posed by applications having mutual exclusivity.<sup>239</sup> Although Boeing suggests that such applicants develop a sharing proposal without Commission involvement, we are nevertheless concerned that the Commission would have to become involved in the

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<sup>234</sup> See 47 U.S.C. § 337(f)(1)(B). In keeping with the statutory meaning, we will treat as public safety services for this purpose those services the sole or principal purpose of which is to protect the safety of life, health, or property. See 47 U.S.C. § 337(f)(1)(A).

<sup>235</sup> In keeping with this eligibility restriction, incumbent licensees will be permitted to assign their licenses only to either government entities or their respective designees. In addition, applications that are pending when our new requirements take effect and which do not meet our new eligibility criteria, will be dismissed. Any such applicant whose application has been designated for hearing may obtain a refund of its hearing fee. See 47 C.F.R. § 1.1113(b).

<sup>236</sup> In certain situations, we will consider requests for waivers of the requirement that a private sector applicant be designated by a government entity. Such consideration will be given in circumstances in which the private sector applicant can demonstrate convincingly that there is no relevant government entity from which it can obtain such a designation, or there are other practical difficulties to securing such a designation, or the waiver is otherwise warranted under Section 1.925 of the Commission’s Rules, 47 C.F.R. § 1.925. We would consider there to be practical difficulties potentially warranting a waiver if the applicant can demonstrate, for example, that obtaining designation from a government entity would be prohibitively costly or would take too long. We do not here attempt to catalog exhaustively all the types of practical difficulties that may warrant waiver relief; we will review all waiver requests on a case-by-case basis, considering the particular circumstances of each case.

<sup>237</sup> See Boeing Comments at 21.

<sup>238</sup> We note, moreover, that airport owners are in many cases government entities.

<sup>239</sup> See Boeing Comments at 21. In any event, we believe that the licensing rules we adopt here preclude mutual exclusivity in the unicom licensing process.



details of the agreement in order to ensure consistency with the policy behind the one-unicom-station-per-airport restriction, or otherwise would have to routinely intervene to resolve disputes between applicants in such situations. The rules we adopt avoid this possibility.

#### **L. South San Diego Uncontrolled Airspace Corridor Group**

66. *Background.* The Commission has granted a general aviation special temporary authority (STA) to the South San Diego Uncontrolled Airspace Corridor Group<sup>240</sup> authorizing the use of the frequency 121.95 MHz for air-to-ground and air-to-air communications for aircraft up to 13,000 feet above mean sea level between Imperial Beach, California and Tecate, Mexico.<sup>241</sup> This STA authorizes aircraft involved in parachute jump activities within the defined area to use 121.95 MHz to communicate position and safety information. The STA was granted because of the large amount of air traffic in this area, comprised in large part of air traffic generated by the activities of military, and other Federal Government and local government entities, and the resultant spectrum congestion. An STA is temporary in nature,<sup>242</sup> yet the conditions that created the need for this STA are not temporary. Therefore, the Commission proposed in the *NPRM* to codify the terms of the STA in Section 87.187 of the Rules,<sup>243</sup> authorizing for an indefinite duration the use of 121.95 MHz for air-to-ground and air-to-air communications for aircraft up to 13,000 feet above mean sea level between Imperial Beach, California and Tecate, Mexico.<sup>244</sup>

67. *Discussion.* We will amend Section 87.187 to codify the terms of the STA granted to the South San Diego Uncontrolled Airspace Corridor Group. The only commenter addressing this proposal, the FAA, supports it.<sup>245</sup> As noted, the congestion in this area, and the consequent need to use the 121.95 MHz frequency for position and other safety communication information, is not expected to end in the near term. Adopting this rule change, therefore, will provide greater certainty to the South San Diego Uncontrolled Airspace Corridor Group and relieve it of the burden of filing repeated requests for extensions of the STA or for new STAs. It will likewise relieve the Commission of the burden of repeatedly processing such STA requests. We note that this action is consistent with our prior actions codifying area-specific provisions in Section 87.187.<sup>246</sup>

<sup>240</sup> The South San Diego Uncontrolled Airspace Corridor Group consists of Government and non-Government entities who share a common concern regarding air safety in this area.

<sup>241</sup> See Letter, dated January 25, 2000, from FCC to Jeff Stone, Aviation Safety Manager, Air Operations Branch, U.S. Customs Service, San Diego, California. The geographical area is defined as: "Airspace located south of the San Diego Class B between Imperial Beach and Tecate:

32-35-00 N. 117-12-00 W. to

32-42-00 N. 116-56-00 W. to

32-41-00 N. 116-41-00 W. to

32-35-00 N. 116-38-00 W. to

32-31-00 N. 117-11-00 W. and return."

<sup>242</sup> See 47 C.F.R. § 1.931.

<sup>243</sup> 47 C.F.R. § 87.187.

<sup>244</sup> *NPRM*, 16 FCC Rcd at 19025 ¶ 50.

<sup>245</sup> FAA Comments at 2.

<sup>246</sup> See, e.g., § 87.187(bb), (cc).

### M. Charter Aircraft Call Signs

68. *Background.* A “wet lease” is an arrangement by which the lessor agrees to provide an entire aircraft and at least one crewmember to the lessee.<sup>247</sup> Some U.S. air carriers lease their aircraft to other carriers, both domestic and foreign, under the provisions of wet lease agreements governed by the FAA.<sup>248</sup> Some wet lease agreements specify that the lessor will not use its own name or call sign in communications transmissions, but rather the name and call sign of the lessee, because the aircraft will be traveling in the airspace of a foreign country for which the owner/licensee does not have operating authority. Section 87.107 of the Commission’s Rules sets forth the station identification requirements for aircraft stations, and it specifies that the station identification used in transmissions be either the call sign assigned by the FCC to the carrier or the registered number of the aircraft.<sup>249</sup> Section 87.107 makes no exception for aircraft operated under wet lease agreements. Noting that wet lease agreements “represent a prevalent industry practice,” the Commission proposed in the *NPRM* to allow a lessee to create a temporary call sign using the lessee’s carrier call sign followed by the suffix “WLA,” denoting that this aircraft is owned by another carrier.<sup>250</sup>

69. *Discussion.* The FAA is the only commenter to address this proposal, and it opposes authorizing temporary call signs for aircraft operated under wet lease agreements because the use of such temporary call signs could “hinder identification of the operator.”<sup>251</sup> Given the FAA’s opposition and the absence in the record of any indication that the inability to acquire temporary call signs for aircraft operated under wet lease arrangements is a problem for any industry segment, we will not adopt this proposal.

### N. Additional Issues

70. In the *NPRM*, the Commission also invited comment on the following issues: (1) how to better inform the aviation community regarding the scope of authority provided by an FCC station license;<sup>252</sup> (2) licensing ultralight aircraft;<sup>253</sup> (3) a proposal to add a designation for radiobeacons in the 525-535 kHz band;<sup>254</sup> and (4) a proposal to authorize, by rule, ground testing of Traffic Alert and Collision Avoidance Systems (TCAS) on 1090 MHz.<sup>255</sup> We discuss each of these issues, as well as nonsubstantive editorial changes recommended by commenters, in turn below.

#### 1. Informing the Aviation Community About the Legal Limits of an Aircraft License

71. The Commission sought comment, especially from small entities, on how to better inform the aviation community of the specific authority conveyed by an FCC-issued aircraft license, because there has appeared to be some confusion on this subject within certain segments of that community.<sup>256</sup> The

<sup>247</sup> See 14 C.F.R. § 119.3.

<sup>248</sup> See 14 C.F.R. § 119.53.

<sup>249</sup> 47 C.F.R. § 87.107.

<sup>250</sup> *NPRM*, 16 FCC Rcd at 19026 ¶ 51.

<sup>251</sup> FAA Reply Comments at 1.

<sup>252</sup> *NPRM*, 16 FCC Rcd at 19026 ¶ 54.

<sup>253</sup> *Id.* at 19026 ¶ 55.

<sup>254</sup> *Id.* at 19026-27 ¶ 56.

<sup>255</sup> *Id.* at 19027 ¶ 57.

<sup>256</sup> *Id.* at 19026 ¶ 54.

only responsive comment was from the FAA, which suggested that the Commission require placement of “a permanent placard on the unit clearly visible to the user indicating that the radio can only be used in accordance with the provisions of Part 87 of the Commission’s Rules.”<sup>257</sup> We will not implement the FAA’s placard suggestion at this time because (1) there is no information in the record on the potential costs of compliance with such a requirement, and (2) we believe that disseminating information on our web site and/or through public notices will be adequate to address this matter. We encourage the Wireless Telecommunications Bureau to use those tools, and such other tools as may be available to it, to better educate the aviation community on this subject.

## 2. Aircraft Stations on Ultralight Aircraft

72. Our rules currently require aircraft stations operating on ultralight aircraft to identify themselves by an FCC-assigned control number.<sup>258</sup> In the *NPRM*, the Commission stated that “[l]icensing these stations in this manner has not only become administratively burdensome, but has essentially made the Commission the registrar of ultralight aircraft since the FAA does not license ultralight aircraft.”<sup>259</sup> The Commission therefore sought comment on whether and how the individual licensing of aircraft stations operating from ultralight aircraft might be terminated without compromising the safety of life and property.<sup>260</sup> We did not receive any comments on this issue. Since there is nothing in the record to indicate that eliminating the requirement that ultralight aircraft identify themselves by an FCC-assigned control number is problematic, and because we believe most such aircraft can acquire “N” numbers, we propose in the *FNPRM* to eliminate the requirement.<sup>261</sup>

## 3. Allocation for Radiobeacons

73. The Commission proposed to amend Section 87.173 of the Rules<sup>262</sup> by adding a designation for radiobeacons in the 525-535 kHz band. The proposal was made because this allocation is reflected in the Section 2.106 Table of Frequency Allocations.<sup>263</sup> We received no comments on this proposal. We will therefore amend Section 87.173 as proposed. The Commission also proposed, as a ministerial matter, to amend Section 87.173 to correct typographical errors, changing “406.25 MHz” to “406.025 MHz” and changing “510.525 kHz” to “510-525 kHz.” We will change the latter reference to “510-535 kHz,” to reflect the new designation of the 525-535 kHz band for radiobeacon use. However, we replace the reference to “406.025 MHz” with “406.0-406.1 MHz” to be consistent with, and for the same reasons as, our decision to begin using “406.0-406.1 MHz” in Part 80 as the term for the emergency position indicating radiobeacons (EPIRBs) formerly called “406 MHz EPIRBs.”<sup>264</sup>

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<sup>257</sup> FAA Reply Comments at 1.

<sup>258</sup> See 47 C.F.R. § 87.107(a)(2).

<sup>259</sup> *NPRM*, 16 FCC Rcd at 19026 ¶ 55.

<sup>260</sup> *Id.*

<sup>261</sup> See ¶ 91, *infra*.

<sup>262</sup> 47 C.F.R. § 87.173.

<sup>263</sup> *NPRM*, 16 FCC Rcd at 19027 ¶ 56.

<sup>264</sup> See Amendment of Parts 13 and 80 of the Commission’s Rules Concerning Maritime Communications, *Report and Order and Further Notice of Proposed Rule Making*, WT Docket No. 00-48, 17 FCC Rcd 6741, 6774 ¶ 85 (2002); see also Amendment of Part 95 of the Commission’s Rules to Authorize the Use of 406.025 MHz for Personal Locator Beacons (PLB), *Report and Order*, WT Docket No. 99-366, 17 FCC Rcd 19871 (2002) (authorizing PLBs on “406.0-406.1 MHz”).

#### 4. Ground Testing of TCAS on 1090 MHz

74. The Commission has granted waivers to allow ground testing of TCAS on 1090 MHz.<sup>265</sup> In the *NPRM*, the Commission proposed to codify this use, viewing this waiver process as inefficient and resource-intensive.<sup>266</sup> We adopt this proposal for the reason stated in the *NPRM*, and, accordingly, amend Section 87.475(c)(2) of our Rules.<sup>267</sup>

#### 5. Editorial Revisions

75. We are adopting, without further comment, some FAA proposals that are of a nonsubstantive editorial nature. For example, we adopt the FAA's proposals to update the names of the relevant FAA offices to which various submissions must be made, as set forth in 47 C.F.R. §§ 87.111, 87.147(d)-(e), and 87.529, and to correct a typographical error in 47 C.F.R. § 87.139(h)(2).<sup>268</sup> We will also adopt the FAA's proposals to add certain definitions to 47 C.F.R. § 87.5 for terms that currently appear in Part 87; however we reject as unnecessary FAA proposals to add definitions of terms that do not currently appear in Part 87.<sup>269</sup> We note that the FAA's Comments included a "red-lined" version of the Proposed Rules Appendix of the *NPRM* (*i.e.*, providing proposed insertions and deletions to *NPRM* proposed rule language), but which lack, in part, accompanying explanations. We decline to take action on any substantive FAA proposal lacking in any explanation in this proceeding to support it. For reasons explained below, we are proposing in the *FNPRM* to adopt the FAA's proposals to revise the Part 87 rules listing frequencies in the HF band, to better reflect the ITU *Radio Regulations*, and to make frequencies in the 118-121.4 MHz, 121.6-121.925 MHz, 123.6-128 MHz, and 132.025-135.975 MHz bands available for ground control communications.<sup>270</sup>

### IV. FURTHER NOTICE OF PROPOSED RULE MAKING

76. In the *NPRM*, the Commission asked interested parties to consider whether other sections of Part 87 should be revised to ensure that the Rules "stay abreast of technological advances, conform to the rules governing other radio services, and are responsive to industry needs..."<sup>271</sup> Commenters were also asked to identify Part 87 Rules that should be eliminated because they are duplicative, outmoded, or otherwise unnecessary.<sup>272</sup> In response, we received several recommendations for amending Part 87 that we believe merit further discussion. In this *FNPRM*, we seek additional comment on proposals made by various commenters in this proceeding so that we may augment the record on these issues. We also make additional proposals, on our own motion, for which we seek comment. With respect to all of these proposals, we ask commenters to provide us with detailed suggestions regarding any appropriate regulatory language and the specific rules that should be amended in order to implement the proposal.<sup>273</sup>

<sup>265</sup> TCAS is an airborne warning system designed to avert mid-air collisions. *See, e.g.*, Rockwell Collins, Inc., *Order*, 14 FCC Rcd 3340 (WTB PSPWD 1999).

<sup>266</sup> *NPRM*, 16 FCC Rcd at 19027 ¶ 57. The FAA, the only commenter to address this issue, agrees. FAA Comments at 2.

<sup>267</sup> 47 C.F.R. § 87.475(c)(2).

<sup>268</sup> *See* FAA Comments at 6, 10, 13, 22.

<sup>269</sup> *See id.* at 7.

<sup>270</sup> *See* ¶¶ 86-87, *infra*.

<sup>271</sup> *NPRM*, 16 FCC at 19027 ¶ 58 (footnote omitted).

<sup>272</sup> *Id.*

<sup>273</sup> We note that many parties already provided such detailed recommendations for amending Part 87 in their earlier comments. Other interested parties may wish to review these recommendations.

In addition, we ask commenters to address with particularity the impact, if any, these proposals may have on public safety and homeland defense.

#### A. Universal Access Transceiver Technology

77. UPS and the FAA both request that we add new rules to Parts 2 and 87<sup>274</sup> to accommodate the use of the 978 MHz frequency by the Universal Access Transceiver (UAT), a datalink technology that has been developed to provide Automatic Dependent Surveillance – Broadcast Service (and other services) to the aviation community.<sup>275</sup> They point out that UAT technology has been field-tested in the FAA Alaska Region over the last two years, using approximately 150 airborne and ground stations, and at several sites within the continental United States, including the FAA Technical Center near Atlantic City, New Jersey, NASA’s Runway Incursion Prevention System test bed at Langley, Virginia, and the Dallas-Ft. Worth Airport.<sup>276</sup> We also note that the RTCA’s Working Group 5 of Special Committee 186 has approved standards for the UAT datalink.<sup>277</sup> Based on the above, we propose to amend the Part 87 rules to accommodate UAT use of the 978 MHz frequency, as shown in Appendix B, *infra*. Commenters are asked to address the preclusive effect, if any, that this rule change might have on other services, including the possibility of harmful interference to other services. Commenters should also consider whether there is a need to make any corresponding changes to the Section 2.106 Table of Frequency Allocations.

#### B. AMS(R)S Issues

78. *Emissions*. Part 87 of our Rules sets forth the specific emission types that are authorized in the Aviation Radio Service. Rockwell Collins, joined by Inmarsat, favors relaxing the Part 87 Rules to authorize the use of any emission type of the licensee’s choosing, subject to certain safeguards.<sup>278</sup> Rockwell Collins believes that the Commission should go even further. Rockwell Collins says the Commission should consider eliminating all requirements, other than reporting requirements, that are specific to data rates and modulation types.<sup>279</sup> Rockwell Collins also urges that the Commission establish bandwidth limitations that would accommodate high data rate services such as Swift64, Inmarsat’s new 64 kbps service.<sup>280</sup> Rockwell Collins states that such a rule change will permit “a new and innovative aeronautical waveform” that will provide passengers and crew with voice and data services, including the

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<sup>274</sup> 47 C.F.R. Parts 2, 87.

<sup>275</sup> UPS Comments at 1; FAA Comments at 3. Automatic Dependent Surveillance – Broadcast (ADS-B) Service automatically broadcasts GPS-derived information on the location, velocity, altitude, heading, etc. of an ADS-B equipped aircraft to other ADS-B equipped aircraft and to ADS-B ground stations for distribution to air traffic control systems.

<sup>276</sup> UPS Comments at 1; FAA Comments at 3.

<sup>277</sup> See Minimum Aviation System Performance Standards for Automatic Dependent Surveillance Broadcast (ADS-B), RTCA/DO-242A (RTCA, Inc. 2002).

<sup>278</sup> Rockwell Collins Comments at 7; Inmarsat Reply Comments at 1.

<sup>279</sup> Rockwell Collins Comments at 10.

<sup>280</sup> *Id.* On November 19, 2002, Rockwell Collins submitted a request for a waiver of several Part 87 rules to allow certification of its aeronautical satellite communications transceiver type HST-900, which is intended to support Inmarsat’s Swift64 service. Letter, dated November 15, 2002, from Linda C. Sadler, Director, Federal Affairs, Rockwell Collins, to D’wana R. Terry, Chief, Public Safety and Private Wireless Division, Federal Communications Commission; see also Wireless Telecommunications Bureau Seeks Comment on Waiver Request by Rockwell Collins, Inc. to Allow Certification of Aeronautical Satellite Communications Transceiver to Support Inmarsat’s Swift64 Service, *Public Notice*, 18 FCC Rcd 3641 (WTB PSPWD 2003). The Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, granted the waiver request effective April 21, 2003.

capability for “significantly higher data rates than those currently supported by the Part 87 Rules.”<sup>281</sup> We seek comment on this proposed liberalization of the Part 87 technical rules, particularly with respect to the impact it will have on the interference environment in the Aviation Radio Service. We also ask for comment on whether elimination of the specified requirements is appropriate only for the VHF AMS(R)S band, or whether it should be extended to additional spectrum in the VHF aeronautical band, or perhaps to the whole band. We note, in this regard, that a relaxation of the technical rules may be suitable for certain frequencies for which the FAA or ARINC provides central coordination and oversight, but may not be suitable for other frequencies, such as those allotted for unicom stations. Commenters should also address the impact of such a relaxation of the technical rules on radio services operating in adjacent frequency bands, and whether additional emissions limitations would be necessary to protect such adjacent-band services from interference.

79. As an alternative to adopting the Rockwell Collins proposal, we seek comment on Boeing’s proposal to at least accommodate code division multiple access (CDMA) emissions in the VHF AMS(R)S band.<sup>282</sup> Boeing observes that the introduction of CDMA technologies can enhance AMS(R)S by enabling satellite operators to provide priority and preemptive access for emergency and safety-related communications without suspending the communications links for less critical communications.<sup>283</sup> We request comment as to whether, if we determine to continue authorizing emission types on a case-by-case basis, we should accommodate CDMA technology, as proposed by Boeing.<sup>284</sup> Finally, commenters are also invited to propose additional rule changes that they believe may still be needed to fully accommodate TDMA emissions in the wake of the *136-137 MHz Order*.<sup>285</sup>

80. *Use of Non-Geostationary Satellite Networks.* Boeing, stating that the Commission originally crafted its AMS(R)S rules solely for satellite networks using geostationary orbit platforms, proposes that the Commission amend the Part 87 Rules to enable use of non-geostationary satellite orbit (NGSO) networks for the provision of AMS(R)S.<sup>286</sup> It notes that both RTCA and ICAO have recently begun addressing the provision of aeronautical mobile satellite services (AMSS) and AMS(R)S by NGSO networks. Boeing states that ICAO’s Aeronautical Mobile Communications Panel has prepared amendments to the SARPs for this purpose,<sup>287</sup> and RTCA Special Committee 165 has developed MOPS

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<sup>281</sup> Rockwell Collins Reply Comments at 2-3. These higher data rates, Rockwell Collins explains, could be achieved by using a low rate Binary Phase Shift Keying (BPSK) signaling channel at 3000 bits/sec and a 16-QAM (Quadrature Amplitude Modulation) modulation waveform at a 33.6 kHz symbol rate over the 1545-1559 MHz (receive) and 1646.5-1660.5 MHz (transmit) frequencies. *Id.* at 3.

<sup>282</sup> Boeing Comments at 7-8.

<sup>283</sup> With TDMA or Frequency Division Multiple Access (FDMA) technology, Boeing explains, implementing a system of priority and preemption may require disruption or suspension of lower priority communications because these technologies divide bandwidth based on assigned frequencies, the availability of which is inherently limited. In contrast, a CDMA-based network allocates channel capacity based on available signal power rather than available frequencies. Thus, according to Boeing, in lieu of actually preempting lower priority signals, a CDMA-based network can permit a high priority communication to be transmitted at greater than normal power levels, thereby providing additional margins to ensure signal reliability. *Id.*

<sup>284</sup> *Id.* at 9. Boeing specifically proposes that the Commission amend 47 C.F.R. § 87.137(a) to include an emission designator for CDMA-based communications above 50 MHz (*e.g.*, 1M5G7W for a 1500 kHz bandwidth), and to amend § 87.141(j) to indicate that transmitters employing CDMA may use either BPSK or QPSK modulations for the spreading code.

<sup>285</sup> See ¶ 32, *supra*.

<sup>286</sup> Boeing Comments at 3-4.

<sup>287</sup> *Id.* However, as Boeing also observes, ICAO has deferred consideration of formal adoption of these amendments until a new satellite system proposal is presented to ICAO for formal consideration. *Id.* at 4 n.9.

for next generation satellite systems.<sup>288</sup> Boeing concludes, “[r]ecognizing the work of RTCA and ICAO, the Commission should update its rules for AMS(R)S to reflect the potential use of NGSO networks.”<sup>289</sup> We request comment on this proposal, and ask supporters of the proposal to provide specific amendatory language to implement this proposal in the Part 87 Rules. Commenters are asked to consider specifically whether it would be premature to adopt this proposal before RTCA and ICAO finalize standards for the provision of AMS(R)S by NGSO networks.

81. *Broadening the AMS(R)S Rules Beyond the Inmarsat System.* Boeing states that the Part 87 Rules governing AMSS and AMS(R)S were developed primarily for aircraft that communicate via the Inmarsat satellite system and, as a result, they contain technical restrictions that, while appropriate for Inmarsat, “have little or no relevance to satellite networks using different or more advanced technical configurations.”<sup>290</sup> Boeing adds that many of the technical requirements that need to be revised are addressed elsewhere in its comments, but identifies a number of other rules that also should be revised to adapt them to non-Inmarsat satellite networks.<sup>291</sup> As an alternative, Boeing suggests that the Commission could simply amend many of these rules to indicate that they apply only to AES operating with the Inmarsat system.<sup>292</sup> ARINC/ATA agrees with Boeing that Part 87 should be amended to take account of the operating parameters of non-Inmarsat satellite systems.<sup>293</sup> We invite comment on this proposal. With respect to Boeing’s alternative proposal to simply specify that the existing technical requirements in question apply only to AES operating with the Inmarsat system, commenters should consider what effect such action would have for non-Inmarsat satellite systems.

82. *Technical Requirements.* Although we have deferred for the time being the question of whether to specifically authorize AMS(R)S in the 1610-1626.5 MHz and 5000-5150 MHz bands under Part 87,<sup>294</sup> we request comment as to whether additional technical requirements for AMS(R)S are warranted, whether we ultimately do authorize AMS(R)S in these bands or not. The FAA and Boeing

<sup>288</sup> *Id.* at 4 (citing Minimum Operational Performance Standards for Avionics Supporting Next Generation Satellite Systems (NGSS), RTCA DO-262 Change 1 (Nov. 28, 2001); Minimum Aviation System Performance Standards (MASPS) as Used in Aeronautical Data Links, DO-270 (Oct. 12, 2001); and Minimum Operational Performance Standards for Avionics Supporting Next Generation Satellite Systems (NGSS), RTCA DO-262 (Dec. 14, 2000).

<sup>289</sup> *Id.*

<sup>290</sup> Boeing Comments at 9. We do not necessarily agree with Boeing’s comments insofar as they suggest that the technical requirements for AES were developed primarily to accommodate the Inmarsat satellite system. However, it is true that these rules were established when there was a single satellite licensee in the L-band, the American Mobile Satellite Corporation (AMSC), and that the rules therefore may reflect certain assumptions regarding system operating parameters that do not apply to other satellite systems. See *AES Order*, 7 FCC Rcd at 5896 ¶ 9. AMSC, a consortium created at the Commission’s directive, was granted an MSS license in 1989 and authorized to provide AMS(R)S as well as MSS under that license. At that time, the Commission mandated that AMSC incorporate into its overall system design minimum requirements for interoperability with international and other countries’ satellite systems, and also required AMSC “to establish appropriate arrangements for handing off aeronautical traffic between its system and others, such as Canada’s and INMARSAT’s.” See Amendment of Parts 2, 22 and 25 of the Commission’s Rules to Allocate Spectrum for, and to Establish Other Rules and Policies Pertaining to the Use of Radio Frequencies in a Land Mobile Satellite Service for the Provision of Various Common Carrier; Applications of Global Land Mobile Satellite, Inc., et al., *Memorandum Opinion, Order and Authorization*, Gen. Docket No. 84-1234, 4 FCC Rcd 6041, 6055 ¶ 94 (1989).

<sup>291</sup> Boeing Comments at 9-10. Boeing identifies the following rules as among those that should be revised for this purpose: 47 C.F.R. §§ 87.131 (maximum power and emissions); 87.133(a)(7) (frequency tolerance); 87.137 (bandwidth); 87.141(j) (transmission rates); and 87.145(d) (Doppler effect compensation).

<sup>292</sup> *Id.* at 10.

<sup>293</sup> ARINC/ATA Reply Comments at 7.

<sup>294</sup> See ¶¶ 15-16, *supra*.

suggest that we should at least augment the technical requirements for AMS(R)S in the 5000-5150 MHz band in order to protect microwave landing systems (MLS).<sup>295</sup> Globalstar, however, contends that the Commission should not impose any new technical requirements for AES used in the provision of AMS(R)S in these bands, but should instead allow licensees to operate pursuant to the existing Part 25 requirements for satellite systems in these bands.<sup>296</sup> We request comment on whether we need to adopt additional technical requirements for AMS(R)S operations either to protect MLS or for any other reason. Commenters are requested to suggest any appropriate rule amendments and to indicate whether, in their view, new technical requirements are warranted for all AMS(R)S operations, need only apply to AMS(R)S operations in certain frequency bands, or why no amendments are appropriate.

83. *Use of the 2 GHz Band.* Boeing requests that the Commission codify its policy of permitting AMS(R)S in any MSS band.<sup>297</sup> Boeing requests that we amend the Part 87 Rules to specify that the 2 GHz band, in addition to the 1610-1626.5 MHz and 5000-5150 MHz bands, is available for AMS(R)S, and to establish emission limitations and other requirements for such AMS(R)S operations.<sup>298</sup> In contrast, Globalstar states that, unlike the situation with respect to the 1610-1626.5 MHz and 5000-5150 MHz bands, there currently is no allocation either in the United States or internationally for Aeronautical Radionavigation Service in the 2 GHz band.<sup>299</sup> We note, as a preliminary matter, that the Commission has indeed determined that AMS(R)S is a type of Aeronautical Mobile-Satellite Service (AMSS), and that AMSS is a type of MSS.<sup>300</sup> However, the Commission did not propose in the *NPRM* to include the 2 GHz band as part of the additional spectrum to be authorized for AMS(R)S operations under Part 87. We hereby invite further comment on whether we should amend Part 87 to provide technical rules to govern AMS(R)S in the 2 GHz band.

### C. Former Civil Air Patrol Frequencies

84. In the *Report and Order*, we removed all Part 87 references to the CAP as obsolete.<sup>301</sup> This included removing references to the CAP from the Remarks column in the Section 87.173(b) frequency table and, as an interim measure, indicating that the frequencies in question are reserved. We now request

<sup>295</sup> FAA Comments at 3 (stating that, in the 5000-5150 MHz band, “any AMS(R)S technical characteristics, including spurious emission, must be designed to give full protection to MLS in the band 5030-5150 MHz”); Boeing Comments at 5 (stating that, in authorizing AMS(R)S in the 5000-5150 MHz band, the Commission should “stress the need to protect” MLS).

<sup>296</sup> Globalstar Reply Comments at 7.

<sup>297</sup> Boeing Comments at 5 (citing *2 GHz Band Order*, 15 FCC Rcd at 16155 ¶ 64; The Boeing Company, Concerning Use of the 1990-2025/2165-2200 MHz and Associated Frequency Bands for a Mobile-Satellite System, *Order and Authorization*, 16 FCC Rcd 13691, 13704 ¶ 36 (IB 2001)); Boeing Reply Comments at 1-2.

<sup>298</sup> *Id.* Boeing states that there is no need to mandate priority and real-time preemptive access for AMS(R)S in the 2 GHz band. Boeing and Globalstar refer to the 1990-2025 MHz band as the relevant 2 GHz spectrum in this context because the 1990-2025 MHz band was allocated in its entirety to MSS when they filed their comments. Since the close of the pleading cycle in this proceeding, however, the Commission has reallocated the 1990-2000 MHz and 2020-2025 MHz band segments for new fixed and mobile services, including Advanced Wireless Services. See Amendment of Part 2 of the Commission’s Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems, *Third Report and Order, Third Notice of Proposed Rulemaking and Second Memorandum Opinion and Order*, ET Docket No. 00-258, 18 FCC Rcd 2223, 2238 ¶ 28 (2003). Accordingly, only the 2000-2020 MHz band is now allocated to MSS. To avoid confusion, we refer to the “2 GHz band” throughout the discussion in the text, and here clarify that we are contemplating the possible allocation of only the 2000-2020 MHz band for AMS(R)S.

<sup>299</sup> Globalstar Reply Comments at 6 n.7.

<sup>300</sup> See *2 GHz Band Order*, 15 FCC Rcd at 16155 ¶ 64, and cases cited therein.

<sup>301</sup> See ¶ 47, *supra*.



commenters to propose the services, if any, to which these frequencies should be reallocated, keeping in mind that these are shared Government/non-Government frequencies.<sup>302</sup> Commenters are also asked to consider whether any or all of these frequencies should simply be removed from Section 87.173(b) so that they are no longer available for licensing under Part 87.<sup>303</sup>

#### **D. Removal of the Radionavigation Allocation in the Ku-Band**

85. Boeing proposes that the Commission remove the reference to the 14000-14400 MHz band in Section 87.187(x) of the Rules<sup>304</sup> and also remove from the Table of Frequency Allocations<sup>305</sup> the allocation for radionavigation in the 14000-14200 MHz band.<sup>306</sup> According to Boeing, there is no existing or planned use of the band for radionavigation in ITU Region 2,<sup>307</sup> either by Government or non-Government users.<sup>308</sup> In addition, Boeing claims that it has confirmed the absence of radionavigation operations in the band from ITU, FAA, ICAO, International Maritime Organization, U. S. Coast Guard and Canadian Coast Guard officials, and that FAA spectrum management personnel have verified that there are no plans to use any frequencies in the 14000-14400 MHz band for aviation services in the future.<sup>309</sup> We tentatively agree with Boeing, and accordingly propose to remove these Ku-Band allocations for radionavigation from the Table of Frequency Allocations and the Part 87 Rules.<sup>310</sup>

#### **E. HF Frequency Bands**

86. The FAA proposes that we amend the frequency table in Section 87.173(b) of our Rules by replacing the existing frequency listings that fall within the HF AM(R)S frequency bands with entries for the band segments 2850-3025 kHz, 3400-3500 kHz, 4650-4700 kHz, 5450-5680 kHz, 6525-6685 kHz, 8815-8965 kHz, 10005-10100 kHz, 11275-11400 kHz, 13260-13360 kHz, 17900-17970 kHz, and 21924-22000 kHz.<sup>311</sup> The FAA also proposes that we delete the table of international HF frequencies in Section

<sup>302</sup> The frequencies in question are 2371 kHz, 2374 kHz, 4466 kHz, 4469 kHz, 4506 kHz, 4509 kHz, 4582 kHz, 4585 kHz, 4601 kHz, 4604 kHz, 4627 kHz, 4630 kHz, 26618.5 kHz, 26620 kHz, 26621.5 kHz, 143.75 MHz, 143.9 MHz, and 148.15 MHz.

<sup>303</sup> At this time, we do not anticipate keeping the frequencies 26618.5 kHz, 26620 kHz, 26621.5 kHz, 143.75 MHz, or 143.9 MHz in the Section 87.173 table because they allocated exclusively for Government use. In addition, the frequency 148.15 MHz is allocated for “Little LEO” uplinks, so we also anticipate removing that frequency.

<sup>304</sup> 47 C.F.R. § 87.187(x) (listing frequencies available for airborne radionavigation devices).

<sup>305</sup> 47 C.F.R. § 2.106.

<sup>306</sup> Boeing Comments at 14-15.

<sup>307</sup> The ITU *Radio Regulations* categorize the world into three regions. Region 1, covering Africa, Europe, and Northern and Western portions of Asia; Region 2, covering the Americas and Greenland; and Region 3, covering Southern portions of Asia, Australia and the South Pacific. See ITU *Radio Regulations* Article S5, Section I.

<sup>308</sup> Boeing observes that the Commission’s International Bureau and the Office of Engineering and Technology have stated that they are unaware of any such use. Boeing Comments at 14 (citing The Boeing Company, Application for Blanket Authority to Operate Up to Eight Hundred Technically Identical Transmit and Receive Mobile Earth Stations Aboard Aircraft in the 14.0-14.5 GHz and 11.7-12.2 GHz Frequency Bands, *Order and Authorization*, 16 FCC Rcd 22645 (IB/OET 2001)).

<sup>309</sup> *Id.* at 14-15.

<sup>310</sup> The designation of the 14000-14200 MHz band for radionavigation also appears in Part 80 of the Rules, and we propose to amend the Part 80 Rules, as well as the Part 87 Rules and Section 2.106, to remove the designation. We also propose, as a nonsubstantive measure, to remove no-longer-accurate designations of certain other frequency bands for radionavigation because the bands are no longer allocated for radionavigation, and the Section 2.106 Table of Frequencies already reflects that fact.

<sup>311</sup> FAA Comments at 15-16.

87.263(d)<sup>312</sup> and replace it with a note indicating that the subject frequencies are to be used in accordance with Appendix 27 of the ITU *Radio Regulations*.<sup>313</sup> We tentatively conclude that adopting these proposals would further the Commission's goals of harmonizing the Part 87 Rules with international standards and is otherwise in the public interest. We invite comment on this proposal.

#### F. Increased Operational Flexibility

87. In the *Report and Order*, we removed the restriction limiting the use of the 121.6-121.95 MHz frequencies to ground control, and allowed these frequencies to be used for general purpose air traffic control communications.<sup>314</sup> The restriction was removed in the interest of enhancing the FAA's flexibility to manage its spectrum resources in response to changing needs.<sup>315</sup> We also expanded the authorized use of the 121.975-122.675 MHz flight service station frequencies to permit air traffic control operations.<sup>316</sup> Toward the same end, the FAA requests that we also amend Section 87.421 of the Rules<sup>317</sup> to make the frequency bands listed therein,<sup>318</sup> which currently are available only to control towers and RCOs, available for ground control communications.<sup>319</sup> We agree that such operational flexibility is desirable in order to address congestion in the VHF air traffic control channels. As a result, we now propose to revise the Rules to permit the FAA to use the three remaining frequency bands listed in Section 87.421 of the Commission's Rules – 118-121.4 MHz, 123.6-128.8 MHz, and 132.025-135.975 MHz – for air traffic control communications, including ground control communications.<sup>320</sup> We seek comment on this proposal.

#### G. Emergency Watch ELT<sup>321</sup>

88. In July 2000, the Chief of the Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, granted a waiver to Breitling U.S.A., Inc. to permit certification of the Breitling Emergency Watch, a back-up safety device designed to supplement conventional 121.5 MHz ELTs.<sup>322</sup> By way of background, the Breitling Emergency Watch is intended to be used by survivors of air crashes to facilitate identification of the crash site location by search and rescue personnel. The device

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<sup>312</sup> 47 C.F.R. § 87.263(d).

<sup>313</sup> FAA Comments at 16.

<sup>314</sup> See ¶ 33, *supra*.

<sup>315</sup> *Id.*

<sup>316</sup> *Id.*

<sup>317</sup> 47 C.F.R. § 87.421.

<sup>318</sup> 118-121.4 MHz, 121.6-121.925 MHz, 123.6-128.8 MHz, and 132.025-135.975 MHz.

<sup>319</sup> FAA Reply Comments at 2. Pursuant to 47 C.F.R. § 87.421(c), the 121.6-121.925 MHz frequencies are already available to control towers and RCOs for communications with ground vehicles and aircraft on the ground. The FAA proposes to add the three other frequency bands to this paragraph.

<sup>320</sup> Commenters may also address our tentative conclusion that any updating of 47 C.F.R. § 87.133(a) that is needed to remove obsolete table entries and footnotes may be accomplished as a nonsubstantive editorial rule amendment that does not have to be the subject of notice and comment rulemaking processes. See n.100, *supra*.

<sup>321</sup> An ELT is a small transmitter carried by an aircraft that is activated automatically in the event of a crash. The ELT transmits signals to alert others of the distress situation and to assist search and rescue units in "homing-in" on the aircraft or vessel. See Amendment of Parts 80 and 87 of the Commission's Rules to Authorize Additional Types of Modulation for Emergency Position Indicating Radiobeacons and Emergency Locator Transmitters in the Maritime and Aviation Services, *Report and Order*, PR Docket No. 87-133, 3 FCC Rcd 1027 ¶ 3 (1988).

<sup>322</sup> Letter, dated July 9, 2000, from D'wana R. Terry, Chief, Public Safety and Private Wireless Division, Federal Communications Commission, to Breitling U.S.A., Inc. (*Breitling Waiver Letter*).

is designed to be worn on a person's wrist, and is activated by breaking a cap and uncoiling an antenna from the watch case.<sup>323</sup> A waiver was needed to certify this device because it did not comply with many of the Part 87 technical requirements applicable to aviation ELTs, including the requirements pertaining to power characteristics,<sup>324</sup> transmitter control requirements,<sup>325</sup> operating temperature,<sup>326</sup> and battery labeling.<sup>327</sup> The initial waiver was granted on a one-year trial basis, subject to four conditions requested by IRAC.<sup>328</sup> In October 2001, the one-year limitation was eliminated.<sup>329</sup> This action was supported by the FAA, the Aircraft Owners and Pilots Association, and other commenters, based on the public safety benefits of the Breitling Emergency Watch and in the absence of significant interference problems stemming from its use during the one-year trial period.<sup>330</sup>

89. We now request comment on whether we should amend the Part 87 Rules to permit certification of the Breitling Emergency Watch and similar devices without need of a waiver of the regulations governing ELT technical characteristics. If commenters conclude that we should amend the Part 87 Rules, they should also indicate what particular amendments would be appropriate. We tentatively conclude that permitting such devices will promote public safety by providing an accurate and rapid means by which search and rescue personnel can locate the victims of an air crash or other aviation distress incident. We ask commenters whether the only rules that need to be amended are those waived in the context of the *Breitling Waiver Order*, or whether there are additional rules that should also be amended.<sup>331</sup> Moreover, we seek comment on whether we should incorporate into the Rules the conditions that apply to the current waiver, namely, the requirement that the device be operated only in aviation emergency situations, and the requirement for the manufacturer to keep records of all purchases, to provide the records on a regular basis to the FAA, and otherwise to the Federal Government upon request. Finally, we seek comment on the possibility of requiring that all such devices be designed for single use and manual activation, like the Breitling Emergency Watch.

## **H. Station Identification of Aircraft Operated by Maintenance Personnel**

90. In July 2002, the Chief, Public Safety and Private Wireless Division, Wireless

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<sup>323</sup> Letter, dated April 30, 2001, from Aaron M. Panner, counsel for Breitling, to D'wana R. Terry, Chief, Public Safety and Private Wireless Division, Federal Communications Commission.

<sup>324</sup> See 47 C.F.R. § 87.141(i).

<sup>325</sup> See 47 C.F.R. § 87.143(d)(4).

<sup>326</sup> See 47 C.F.R. § 87.147(a).

<sup>327</sup> See 47 C.F.R. § 87.147(b).

<sup>328</sup> The four conditions were: (1) the Breitling Emergency Watch could be sold only to licensed pilots; (2) the device could be operated only in aviation emergency situations; (3) the device could be sold and operated on a one-year trial basis subject to immediate termination at the request of the FAA if the device caused interference to other aviation communications; and (4) Breitling would have to provide records of all purchases, including pilot license number, to the FAA every month during the one-year test period, and otherwise make the records available to the Federal Government on request. *Breitling Waiver Letter* at 3-4.

<sup>329</sup> Breitling U.S.A., Inc., *Order*, 16 FCC Rcd 18560 (WTB PSPWD 2001) (*Breitling Waiver Order*).

<sup>330</sup> *Id.* at 18561 ¶ 6. At Breitling's request, and again with the concurrence of the commenters, the condition that the device be sold only to licensed pilots was removed. *Id.* at 18562 ¶ 7.

<sup>331</sup> In addition to four rules cited in footnotes 324 through 327, *supra*, the *Breitling Waiver Order* waived Section 87.193 of the Rules, 47 C.F.R. § 87.193, which requires ELTs to be operated as part of an aircraft station or survival craft station. *Id.* at 18562 ¶ 7.

Telecommunications Bureau, responding to a request by the FAA,<sup>332</sup> granted a waiver of Section 87.107(a) of the Rules<sup>333</sup> to permit use of a different station identification format by aircraft that are operated by maintenance personnel moving the aircraft from one airport location to another.<sup>334</sup> Specifically, the waiver permits aircraft being taxied from one airport location to another by maintenance personnel, to use a station identification which consists of the name of the company owning or operating the aircraft, followed by the word “Maintenance” and whatever additional alphanumeric characters the licensee deems sufficient to avoid duplicative or confusing station identifications.<sup>335</sup> This waiver was granted in response to the FAA’s assertion that problems in communications between air traffic ground controllers and aircraft maintenance personnel moving aircraft within an airport had resulted in runway incursions and other threats to airport safety, and that these problems could be reduced by grant of the requested waiver.<sup>336</sup> We now propose to codify the terms of this waiver in Section 87.107(a) of the Commission’s Rules by establishing a new station identification format that may be used for aircraft operated by maintenance personnel within an airport. That is, we propose to amend Section 87.107(a) to authorize aircraft stations, on aircraft being moved within the airport by maintenance personnel, to use a station identification consisting of the name of the owner or operator of the aircraft, followed by the word “Maintenance” and whatever additional alphanumeric characters the licensee deems sufficient to avoid duplicative or confusing station identifications. We request comment on our proposal.

#### **I. Aircraft Stations on Ultralight Aircraft**

91. As noted previously, we did not receive any comments in response to the question in the *NPRM* as to whether and how the individual licensing of aircraft stations operating from ultralight aircraft might be terminated without compromising the safety of life and property.<sup>337</sup> The absence of comments on this question suggests a lack of interest in continued licensing of aircraft stations on ultralight aircraft. Given our understanding that other station identification alternatives are available for aircraft stations on ultralight aircraft, including the acquisition of “N” numbers, we therefore propose to eliminate the requirement in Section 87.107(a)(2) of the Commission’s Rules that FCC control numbers be assigned to ultralight aircraft for station identification purposes.<sup>338</sup> We ask commenters to address our tentative conclusion that there are alternative means by which aircraft stations on ultralight aircraft may identify themselves, particularly the “N” number-based format described in current Section 87.107(a)(3).<sup>339</sup>

#### **J. Security Control of Air Traffic and Air Navigation Aids**

92. Section 87.395 of the Commission’s Rules contains provisions pertaining to the Plan for the Security Control of Air Traffic and Air Navigation Aids (SCATANA).<sup>340</sup> SCATANA defines the responsibilities of the Commission for the security control of non-Federal air navigation aids.<sup>341</sup> In

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<sup>332</sup> See Letter, transmitted via Feb. 26, 2002 facsimile, from Richard K. Peterson, Manager, Air Traffic Division, Great Lakes Region, Federal Aviation Administration, to Kim Kleppinger, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, Federal Communications Commission.

<sup>333</sup> 47 C.F.R. § 87.107(a).

<sup>334</sup> Federal Aviation Administration, *Order*, 17 FCC Rcd 13637 (WTB PSPWD 2002).

<sup>335</sup> *Id.* at 13639 ¶ 7.

<sup>336</sup> *Id.* at 13637 ¶ 3.

<sup>337</sup> See ¶ 72, *supra*.

<sup>338</sup> 47 C.F.R. § 87.107(a)(2).

<sup>339</sup> 47 C.F.R. § 87.107(a)(3).

<sup>340</sup> 47 C.F.R. § 87.395.

<sup>341</sup> 47 C.F.R. § 87.395(a).

furtherance of the national security purposes underlying SCATANA, the Commission has developed the FCC Support Plan for the Security Control of Non-Federal Air Navigation Aids (Support Plan), which sets forth procedures and instructions to be followed when SCATANA is implemented, permitting the use of such navigation aids by the military and by government agencies. Section 87.395 provides, *inter alia*, that all licensees are subject to restrictions imposed by appropriate military authorities pursuant to SCATANA and the FCC Support Plan when an Air Defense Emergency or Defense Emergency exists or is imminent.<sup>342</sup> In view of post-September 11 developments, such as the creation of the Department of Homeland Security and the comprehensive review of the nation's national security preparedness, we believe that it is appropriate to invite comment on whether changes to SCATANA, the Support Plan, or Section 87.395 may be warranted. Proponents of such changes should precisely identify the changes that are advocated and provide an analysis of how the proposed changes would further national security.

## V. CONCLUSION

93. In the *Report and Order*, we adopt a number of amendments that modernize the Part 87 Rules in a manner that will enhance aviation safety, facilitate the deployment of new technologies, encourage innovation in the aviation and the avionics equipment industries, harmonize our Rules with international standards, and maximize spectral efficiency while maintaining important safeguards against interference. In the *Further Notice of Proposed Rule Making*, we seek comment on a number of possible additional changes to Part 87 that have the potential to further these same objectives.

## VI. REGULATORY MATTERS

### A. Ex Parte Rules - Permit-But-Disclose Proceeding

94. This is a permit-but-disclose notice and comment rulemaking proceeding. *Ex parte* presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed as provided in our Rules.<sup>343</sup>

### B. Final Regulatory Flexibility Certification

95. The Regulatory Flexibility Act of 1980, as amended (RFA),<sup>344</sup> requires that a regulatory flexibility analysis be prepared for notice-and-comment rule making proceedings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."<sup>345</sup> The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."<sup>346</sup> In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.<sup>347</sup> A "small business concern" is one which: (1) is independently owned and

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<sup>342</sup> 47 C.F.R. § 87.395(b)(1).

<sup>343</sup> See generally 47 C.F.R. §§ 1.1202, 1.1203, 1.1206(a).

<sup>344</sup> The RFA, see 5 U.S.C. § 601 – 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

<sup>345</sup> 5 U.S.C. § 605(b).

<sup>346</sup> 5 U.S.C. § 601(6).

<sup>347</sup> 5 U.S.C. § 601(3) (incorporating by reference the definition of "small-business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).<sup>348</sup>

96. The purpose of this *Report and Order and Further Notice of Proposed Rule Making* is to streamline and update our Part 87 Rules governing the Aviation Radio Service. We believe the rules adopted in the *Report and Order* do not impose any additional compliance burden on small entities.

97. We have identified those small entities that could conceivably be affected by the rule changes adopted herein. Small businesses in the aviation and marine radio services use a marine very high frequency (VHF) radio, any type of emergency position indicating radio beacon (EPIRB) and/or radar, a VHF aircraft radio, and/or any type of emergency locator transmitter (ELT). The adopted rules may also affect small businesses that manufacture radio equipment. However, we anticipate that these rule changes will not impose any new burdens on small entities, but in fact will reduce regulatory and procedural burdens on small entities. The general effect of the rule changes adopted herein is to streamline the rules, remove duplicative requirements, provide greater operational flexibility, promote spectrum efficiency, facilitate equipment certification, and make our rules consistent with international requirements, all of which are measures that should have an overall beneficial effect on the regulated entities.<sup>349</sup> We certified in the *Notice of Proposed Rule Making* in this proceeding that the rules proposed therein would not, if promulgated, have a significant economic impact upon a substantial number of small entities, as that term is defined by the RFA,<sup>350</sup> and no party has challenged or otherwise commented on that certification.

98. We therefore certify that the requirements of this *Report and Order* will not have a significant economic impact upon a substantial number of small entities, as that term is defined by the RFA.

99. The Commission will send a copy of this *Report and Order*, including a copy of this final certification, in a report to Congress pursuant to the Congressional Review Act.<sup>351</sup> In addition, the *Report and Order* and this final certification will be sent to the Chief Counsel for Advocacy of the Small Business Administration, and will be published in the Federal Register.<sup>352</sup>

### C. Comment Dates

100. Pursuant to Sections 1.415 and 1.419 of our Rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments on or before [90 days after Federal Register publication] and reply comments on or before [120 days after Federal Register publication]. Comments may be filed using the Commission's Electronic Filing System (ECFS) or by filing paper copies.<sup>353</sup>

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<sup>348</sup> 15 U.S.C. § 632.

<sup>349</sup> See, e.g., ¶ 27 (clarifying that sign-in and sign-out signatures are not required for automatic station logs and otherwise clarifying the log requirements); ¶ 31 (allowing certification of 8.33 kHz channel spacing transmitters without a waiver); ¶ 33 (providing for more flexible use of certain air traffic control frequencies); ¶ 35 (allowing certification of equipment that can operate both within and outside of the civil aviation bands); ¶ 37 (eliminating 21-day waiting period before an equipment authorization application can be approved); ¶ 40 (extending the terms of non-aircraft station licenses from five to ten years); ¶ 41 (extending the construction period for unicom and radionavigation land stations from eight months to one year); and ¶ 43 (authorizing use of an additional emission type), *supra*.

<sup>350</sup> *NPRM*, 16 FCC Rcd at 19040-41.

<sup>351</sup> See 5 U.S.C. § 801(a)(1)(A).

<sup>352</sup> See 5 U.S.C. § 605(b).

<sup>353</sup> See Electronic Filing of Documents in Rulemaking Proceedings, *Report and Order*, GC Docket No. 97-113, 13 FCC Rcd 11322 (1998).

101. Comments filed through the ECFS can be sent as an electronic file via the Internet to <<http://www.fcc.gov/e-file/ecfs.html>>. Generally, only one copy of an electronic submission must be filed. If multiple docket or rulemaking numbers appear in the caption of this proceeding, however, commenters must transmit one electronic copy of the comments to each docket or rulemaking number referenced in the caption. In completing the transmittal screen, commenters should include their full name, Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions for e-mail comments, commenters should send an e-mail to [ecfs@fcc.gov](mailto:ecfs@fcc.gov), and should include the following words in the body of the message, "get form <your e-mail address>." A sample form and directions will be sent in reply. Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, commenters must submit two additional copies for each additional docket or rulemaking number. All filings must be addressed to the Commission's Secretary, Marlene H. Dortch, Office of the Secretary, Federal Communications Commission, 445 12th St., S.W., Washington, D. C. 20554. Filings can be sent first class by the U.S. Postal Service, by an overnight courier or hand and message-delivered. Hand and messenger-delivered paper filings must be delivered to 236 Massachusetts Avenue, N.E., Suite 110, Washington, D.C. 20002. The filing hours at this location are 8:00 a.m. to 7:00 p.m. Filings delivered by overnight courier (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.

102. Parties who choose to file by paper should also submit their comments on diskette. These diskettes should be submitted to Jeffrey Tobias, Esq., Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, 445 12th St., S.W., Room 2-C828, Washington, D.C. 20554. Such a submission should be on a 3.5-inch diskette formatted in an IBM-compatible format using Microsoft Word 2002 or compatible software. The diskette should be accompanied by a cover letter and should be submitted in "read only" mode. The diskette should be clearly labeled with the commenter's name, proceeding (including the lead docket number in this case, WT Docket No. 01-289), type of pleading (comment or reply comment), date of submission, and the name of the electronic file on the diskette. The label should also include the following phrase "Disk Copy - Not an Original." Each diskette should contain only one party's pleadings, preferably in a single electronic file. In addition, commenters should send diskette copies to the Commission's copy contractor, Qualex International, Inc., 445 12th Street, S.W., Room CY-B402, Washington, D.C. 20554.

#### **D. Paperwork Reduction Act**

103. This *Report and Order and Further Notice of Proposed Rule Making* does not contain any new or modified information collection.

#### **E. Ordering Clauses**

104. Accordingly, IT IS ORDERED that, pursuant to the authority of Sections 4(i), 303(r), and 332(a)(2) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(r), 332(a)(2), Parts 2, 87, and 95 of the Commission's Rules ARE AMENDED as set forth in the attached Appendix A, effective sixty days after publication in the Federal Register.

105. IT IS FURTHER ORDERED that, pursuant to Sections 4(i), 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(r) and 403, this *Further Notice of Proposed Rule Making* IS HEREBY ADOPTED, and NOTICE IS HEREBY GIVEN of the proposed regulatory changes described in the *Further Notice of Proposed of Rule Making*.

106. IT IS FURTHER ORDERED that the requests of the Federal Aviation Administration to file late-filed comments and late-filed reply comments ARE GRANTED and the late-filed comments and reply comments of the Federal Aviation Administration are HEREBY ACCEPTED into the record in this proceeding.

107. IT IS FURTHER ORDERED that the Commission's Consumer Information Bureau, Reference Information Center, SHALL SEND a copy of this *Report and Order and Further Notice of Proposed Rule Making*, including the Final Regulatory Flexibility Certification and Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

**F. Further Information**

108. For further information, contact Jeffrey Tobias, jtobias@fcc.gov, or Ghassan Khalek, gkhalek@fcc.gov, Policy and Rules Branch, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, (202) 418-0680, or TTY (202) 418-7233.

109. Alternative formats (computer diskette, large print, audiocassette and Braille) are available to persons with disabilities by contacting Brian Millin at (202) 418-7426, TTY (202) 418-7365, or at bmillin@fcc.gov. This *Report and Order and Further Notice of Proposed Rule Making* can also be downloaded at: <http://www.fcc.gov/dtf/>.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch  
Secretary



**APPENDIX A: FINAL RULES**

Parts 2, 87 and 95 of title 47 of the Code of Federal Regulations are amended as follows:

**PART 2 -- FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS;  
GENERAL RULES AND REGULATIONS**

1. The authority citation for part 2 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations, is amended as follows:

- a. Revise pages 26 and 44.
- b. In the list of International Footnotes under heading I., add footnotes 5.197A and 5.328B.
- c. In the list of United States (US) Footnotes, revise footnote US31 and add footnote US343.

**§ 2.106 Table of Frequency Allocations.**

The revisions and additions read as follows:

\* \* \* \* \*

5.175 5.179 5.184 5.187 87.5-100 BROADCASTING  5.190 100-108 BROADCASTING  5.192 5.194 108-117.975 AERONAUTICAL RADIONAVIGATION      5.197 5.197A 117.975-137 AERONAUTICAL MOBILE (R)          5.111 5.198 5.199 5.200 5.201 5.202 5.203 5.203A 5.203B	75.4-76 FIXED MOBILE	75.4-87 FIXED MOBILE	75.4-88	75.4-76 FIXED MOBILE  NG3 NG49 NG56	Public Mobile (22) Private Land Mobile (90) Personal Radio (95)
	76-88 BROADCASTING Fixed Mobile	5.182 5.183 5.188 87-100 FIXED MOBILE BROADCASTING		76-88 BROADCASTING  NG128 NG129 NG149	Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
	5.185 88-100 BROADCASTING	88-108	88-108 BROADCASTING  US93 NG2 NG128 NG129	Broadcast Radio (FM) (73) Auxiliary Broadcasting (74)	
	108-117.975 AERONAUTICAL RADIONAVIGATION		Aviation (87)		
5.197 5.197A					
117.975-137 AERONAUTICAL MOBILE (R)					
5.111 5.198 5.199 5.200 US26 US28					
121.9375-123.0875	121.9375-123.0875 AERONAUTICAL MOBILE				
5.198 US30 US31 US33 US80 US102 US213	5.198 US30 US31 US33 US80 US102 US213				
123.0875-123.5875 AERONAUTICAL MOBILE					
5.198 5.200 US32 US33 US112					
See next page for 123.5875-137 MHz		See next page for 123.5875-137 MHz			

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## INTERNATIONAL FOOTNOTES

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5.197A The band 108-117.975 MHz may also be used by the aeronautical mobile (R) service on a primary basis, limited to systems that transmit navigational information in support of air navigation and surveillance functions in accordance with recognized international aviation standards. Such use shall be in accordance with Resolution 413 (WRC-03) and shall not cause harmful interference to nor claim protection from stations operating in the aeronautical radionavigation service which operate in accordance with international aeronautical standards.

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5.328B The use of the bands 1164-1300 MHz, 1559-1610 MHz and 5010-5030 MHz by systems and networks in the radionavigation-satellite service for which complete coordination or notification information, as appropriate, is received by the Radiocommunication Bureau after 1 January 2005 is subject to the application of the provisions of Nos. 9.12, 9.12A and 9.13. Resolution 610 (WRC-03) shall also apply.

\* \* \* \* \*

## UNITED STATES (US) FOOTNOTES

\* \* \* \* \*

US31 The frequencies 122.700, 122.725, 122.750, 122.800, 122.950, 122.975, 123.000, 123.050 and 123.075 MHz may be assigned to aeronautical advisory stations. In addition, at landing areas having a part-time or no airdrome control tower or FAA flight service station, these frequencies may be assigned on a secondary non-interference basis to aeronautical utility mobile stations, and may be used by FAA ground vehicles for safety related communications during inspections conducted at such landing areas.

The frequencies 122.850, 122.900 and 122.925 MHz may be assigned to aeronautical multicom stations. In addition, 122.850 MHz may be assigned on a secondary noninterference basis to aeronautical utility mobile stations. In case of 122.925 MHz, US213 applies.

Air carrier aircraft stations may use 122.000 and 122.050 MHz for communication with aeronautical stations of the Federal Aviation Administration and 122.700, 122.800, 122.900 and 123.000 MHz for communications with aeronautical stations pertaining to safety of flight with and in the vicinity of landing areas not served by a control tower.

Frequencies in the band 121.9375-122.6875 MHz may be used by aeronautical stations of the Federal Aviation Administration for communication with aircraft stations.

\* \* \* \* \*

US343 Differential-Global-Positioning-System (DGPS) Stations, limited to ground-based transmitters, may be authorized on a primary basis in the bands 108-117.975 and 1559-1610 MHz for the specific purpose of transmitting DGPS information intended for aircraft navigation. Such use shall be in accordance with ITU Resolution 413 (WRC-03).

**PART 87—AVIATION SERVICES**

1. The authority citation for Part 87 continues to read as follows:

**AUTHORITY:** 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, 307(e) unless otherwise noted. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. 151-156, 301-609.

2. Section 87.5 is amended by removing the entry and definition for Civil Air Patrol Station and by adding, at the appropriate positions in alphabetical order, entries and definitions for Automatic Terminal Information Service-Broadcast (ATIS-B), Differential GPS (DGPS), and Flight Information Service-Broadcast (FIS-B), to read as follows:

**§ 87.5 Definitions.**

\* \* \* \* \*

*Airport control tower (control tower) station.* An aeronautical station providing communication between a control tower and aircraft.

*Automatic terminal information service-broadcast (ATIS-B).* The automatic provision of current, routine information to arriving and departing aircraft throughout a 24-hour period or a specified portion thereof.

*Automatic weather observation station (AWOS) or automatic surface observation station (ASOS).* A land station located at an airport and used to automatically transmit weather information to aircraft.

\* \* \* \* \*

*Aviation support station.* An aeronautical station used to coordinate aviation services with aircraft and to communicate with aircraft engaged in unique or specialized activities. (See Subpart K.)

*Differential GPS (DGPS).* A system which transmits corrections to the GPS derived position.

*Emergency locator transmitter (ELT) test station.* A land station used for testing ELTs or for training in the use of ELTs.

\* \* \* \* \*

*Expendable launch vehicle (ELV).* A booster rocket that can be used only once to launch a payload, such as a missile or space vehicle.

*Flight Information Service-Broadcast (FIS-B).* A broadcast service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

*Flight test aircraft station.* An aircraft station used in the testing of aircraft or their major components.

\* \* \* \* \*

3. Section 87.25 is amended by removing paragraph (f).
4. Section 87.27 is amended by removing paragraph (b), redesignating paragraph (c) as (b), and revising paragraph (a) to read as follows:

**§ 87.27 License term.**

(a) Licenses for stations in the aviation services will normally be issued for a term of ten years from the date of original issuance, or *renewal*.

\* \* \* \* \*

5. Section 87.45 is amended to read as follows:

**§ 87.45 Time in which station is placed in operation.**

This section applies only to unicom stations and radionavigation land stations, excluding radionavigation land test stations. When a new license has been issued or additional operating frequencies have been authorized, the station *or* frequencies must be placed in operation no later than one year from the date of the grant. The licensee must notify the Commission in accordance with § 1.946 of this chapter that the station or frequencies have been placed in operation.

6. Section 87.109 is amended to read as follows:

**§ 87.109 Station Logs.**

(a) A station at a fixed location in the international aeronautical mobile service must maintain a log in accordance with Annex 10 of the ICAO Convention.

(b) A station log must contain the following information:

- (1) The name of the agency operating the station.
- (2) The identification of the station.
- (3) The date.
- (4) The time of opening and closing the station.
- (5) The frequencies being guarded and the type of watch (continuous or scheduled) being maintained on each frequency.
- (6) Except at intermediate mechanical relay stations where the provisions of this paragraph need not be complied with, a record of each communication showing text of communication, time communications completed, station(s) communicated with, and frequency used.
- (7) All distress communications and action thereon.
- (8) A brief description of communications conditions and difficulties, including harmful interference. Such entries should include, whenever practicable, the time at which interference was experienced, the character, radio frequency and identification of the interfering signal.
- (9) A brief description of interruption to communications due to equipment failure or other troubles, giving the duration of the interruption and action taken.
- (10) Such additional information as may be considered by the operator to be of value as part of the record of the stations operations.

(c) Stations maintaining written logs must also enter the signature of each operator, with the time the operator assumes and relinquishes a watch.

7. Section 87.111 is amended to read as follows:

**§ 87.111 Suspension or discontinuance of operation.**

The licensee of any airport control tower station or radionavigation land station must notify the nearest FAA regional office upon the temporary suspension or permanent discontinuance of the station. The FAA regional office must be notified again *when* service resumes.

8. Section 87.131 is amended by revising the table and footnote 8 to read as follows:

**§ 87.131 Power and emissions.**

\* \* \*

Class of station	Frequency band/frequency	Authorized emission(s) <sup>9</sup>	Maximum power <sup>1</sup>
* * *	* * *	* * *	* * *
Aeronautical enroute and aeronautical fixed.	HF.....	R3E, H3E, J3E, J7B, H2B, J2D	6 kW.
	VHF.....	A3E, A9Wm G1D, A2D	
* * *	* * *	* * *	* * *
Aircraft (Communication).....	UHF.....	F2D, F9D, F7D	25 watts.
	VHF.....	A3E, A9W, G1D, G7D, A2D	55 watts.
	HF.....	R3E, H3E, J3E, J7B, H2B, J7D, J9W	400 watts.
	HF.....	A1A, F1B, J2A, J2B	100 watts.
* * *	* * *	* * *	* * *
Aircraft earth.....	UHF.....	G1D, G1E, G1W	60 watts. <sup>8</sup>
* * * * *	* * * * *	* * * * *	* * *

<sup>1</sup> The power is measured at the transmitter output terminals and the type of power is determined according to the emission designator as follows:

(i) Mean power (pY) for amplitude modulated emissions and transmitting both sidebands using unmodulated full carrier.

(ii) Peak envelope power (pX) for all emission designators other than those referred to in paragraph (i) of this note.

\* \* \*

<sup>8</sup> Power may not exceed 60 watts per carrier, as measured at the input of the antenna subsystem, including any installed diplexer. The maximum EIRP may not exceed 2000 watts per carrier.

<sup>9</sup> Excludes automatic link establishment.

\* \* \*

9. Section 87.133 is amended by revising paragraph (c) to read as follows:

**§ 87.133 Frequency stability.**

\* \* \* \* \*

(c) For single-sideband transmitters, the tolerance is:

(1) All aeronautical stations on land.....10 Hz

(2) All aircraft stations.....20 Hz

\* \* \* \* \*

10. Section 87.137 is revised by amending the table in paragraph (a) to read as follows:

**§ 87.137 Types of emission.**

(a)\* \* \*

Class of emission	Emission designator	Authorized bandwidth (kilohertz)		
		Below 50 MHz	Above 50 MHz	Frequency deviation
* * *	* * *	* * *	* * *	* * *
A3E <sup>2</sup>	6K00A3E		<sup>3</sup> 50 (17)	
A3E	5K6A3E		8.33kHz	
* * *	* * *	* * *	* * *	* * *
F9D	5M0F9D		(9)	
G1D	16K0G1D		20kHz	
* * *	* * *	* * *	* * *	* * *
G1E <sup>16</sup>	21K0G1E		25	
G1W <sup>16</sup>	21K0G1W		25	
* * * * *	* * * * *	* * * * *	* * * * *	* * * * *

\* \* \*

<sup>2</sup> For use with an authorized bandwidth of 8.0 kilohertz at radiobeacon stations. A3E will not be authorized:

(i) At existing radiobeacon stations that are not authorized to use A3 and at new radiobeacon stations unless specifically recommended by the FAA for safety purposes.

(ii) At existing radiobeacon stations currently authorized to use A3, subsequent to January 1, 1990, unless specifically recommended by the FAA for safety purposes.



<sup>3</sup> In the band 117.975-136 MHz, the authorized bandwidth is 25 kHz for transmitters approved after January 1, 1974.

\* \* \*

<sup>9</sup> To be specified on license.

\* \* \*

<sup>16</sup> Authorized for use by aircraft earth stations. Lower values of necessary and authorized bandwidth are permitted.

<sup>17</sup> In the band 117.975-137 MHz, the Commission will not authorize any 8.33 kHz channel spaced transmissions or the use of their associated emission designator within the U.S. National Airspace System, except by avionics equipment manufacturers, and Flight Test Stations, which are required to perform installation and checkout of such radio systems prior to delivery to their customers for use outside U.S. controlled airspace. For transmitters certificated to tune to 8.33 kHz channel spacing as well as 25 kHz channel spacing, the authorized bandwidth is 8.33 kHz when tuned to an 8.33 kHz channel.

\* \* \* \* \*

11. Section 87.139 is amended by removing paragraph (i)(2), redesignating paragraphs (i)(3) and (i)(4) as paragraphs (i)(2) and (i)(3), and revising paragraphs (h)(2), (i)(1), and (i)(3) to read as follows:

**§ 87.139 Emission limitations.**

\* \* \* \* \*

(h) \* \* \* \* \*

(2) When the frequency is removed from the assigned frequency by more than 100 percent of the authorized bandwidth the attenuation must be at least 30 dB.

(i) \* \* \* \* \*

(1) At rated output power, while transmitting a modulated single carrier, the composite spurious and noise output shall be attenuated by at least:

Frequency (MHz)	Attenuation (dB) <sup>1</sup>
0.01 to 1525	-135 dB/4 kHz
1525 to 1559	-203 dB/4 kHz
1559 to 1585	-155 dB/MHz
1585 to 1605	-143 dB/MHz
1605 to 1610	-117 dB/MHz
1610 to 1610.6	-95 dB/MHz
1610.6 to 1613.8	-80 dBW/MHz <sup>3</sup>
1613.8 to 1614	-95 dB/MHz
1614 to 1626.5	-70 dB/4 kHz
1626.5 to 1660	-70 dB/4 kHz <sup>2, 3, 4</sup>
1660 to 1670	-49.5 dBW/20 kHz <sup>2, 3, 4</sup>

1670 to 1735	-60 dB/4 kHz
1735 to 12000	-105 dB/4 kHz
12000 to 18000	-70 dB/4 kHz

<sup>1</sup> These values are expressed in dB referenced to the carrier for the bandwidth indicated, and relative to the maximum emission envelope level, except where the attenuation is shown in dBW, the attenuation is expressed in terms of absolute power referenced to the bandwidth indicated.

<sup>2</sup> Attenuation measured within the transmit band excludes the band  $\pm 35$  kHz of the carrier frequency.

<sup>3</sup> This level is not applicable for intermodulation products.

<sup>4</sup> The upper limit for the excess power for any narrow-band spurious emission (excluding intermodulation products within a 30 kHz measurement bandwidth) shall be 10 dB above the power limit in this table.

\* \* \* \* \*

(3) \* \* \*

Frequency Offset (normalized to SR)	Attenuation (dB)
+/-0.75 x SR	0
+/-1.40 x SR	20
+/-2.95 x SR	40

Where: SR = Symbol Rate  
 SR = 1 x channel rate for BPSK  
 SR = 0.5 x channel rate for QPSK

\* \* \* \* \*

12. Section 87.145 is amended by removing paragraph (c)(1) and redesignating paragraphs (c)(2) through (c)(5) as paragraphs (c)(1) through (c)(4).

13. Section 87.147 is amended by adding paragraph (f) and revising paragraphs (d), (d)(1), and (e) to read as follows:

**§ 87.147 Authorization of equipment.**

\* \* \* \* \*

(d) An applicant for certification of equipment intended for transmission in any of the frequency bands listed in paragraph (d)(3) of this section must notify the FAA of the filing of a certification application. The letter of notification must be mailed to: FAA, Office of Spectrum Policy and Management, ASR-1, 800 Independence Ave., S.W., Washington, D.C. 20591 prior to the filing of the application with the Commission.

\* \* \* \* \*

(2) The certification application must include a copy of the notification letter to the FAA. The Commission will not act until it receives the FAA's determination regarding whether it objects to the application for equipment authorization. The FAA should mail its determination to: Office of Engineering and Technology Laboratory, Authorization and Evaluation Division, 7435 Oakland Mills Rd., Columbia, MD 21046. The Commission will consider the FAA determination before taking final action on the application.

(3) The frequency bands are as follows:

90-110 kHz  
190-285 kHz  
325-435 kHz  
74.800 MHz to 75.200 MHz  
108.000 MHz to 137.000 MHz  
328.600 MHz to 335.400 MHz  
960.000 MHz to 1215.000 MHz  
1545.000 MHz to 1626.500 MHz  
1646.500 MHz to 1660.500 MHz  
5000.000 MHz to 5250.000 MHz  
14.000 GHz to 14.400 GHz  
15.400 GHz to 15.700 GHz  
24.250 GHz to 25.250 GHz  
31.800 GHz to 33.400 GHz

(e) Verification reports for ELTs capable of operating on the frequency 406.0-406.1 MHz must include sufficient documentation to show that the ELT meets the requirements of Section 87.199(a) of this Part. A letter notifying the FAA of the ELT verification must be mailed to: FAA, Office of Spectrum Policy and Management, ASR-1, 800 Independence Avenue SW., Washington, DC 20591

(f) Certification may be requested for equipment that has the capability to transmit in the 138-144 MHz, 148-149.9 MHz, or 150.5-150.8 MHz bands as well as frequency bands set forth in Section 87.173 of this part. The Commission will only certify this equipment for use in the bands regulated by this part.

14. Section 87.151 is added to read as follows:

**§ 87.151 Special requirements for differential GPS receivers.**

(a) The receiver shall achieve a message failure rate less than or equal to one failed message per 1000 full-length (222 bytes) application data messages, while operating over a range from -87 dBm to -1 dBm, provided that the variation in the average received signal power between successive bursts in a given time slot shall not exceed 40 dB. Failed messages include those lost by the VHF data receiver system or which do not pass the cyclic redundancy check (CRC) after application of the forward error correction (FEC).

(b) The aircraft receiving antenna can be horizontally or vertically polarized. Due to the difference in the signal strength of horizontally and vertically polarized components of the broadcast signal, the total aircraft implementation loss is limited to 15 dB for horizontally polarized receiving antennas and 11 dB for vertically polarized receiving antennas.

(c) Desensitization. The receiver shall meet the requirements specified in paragraph (a) of this section in the presence of VHF-FM broadcast signals in accord with following tables.

(1) Maximum levels of undesired signals.

Frequency <sup>1</sup>	Maximum level of undesired signal at the receiver input (dBm)
50 kHz up to 88 MHz	-13
88 MHz – 107.900 MHz	[see paragraph (c)(2)]
108.000 MHz – 117.975 MHz	excluded
118 MHz	-44
118.025 MHz	-41
118.050 MHz up to 1660.5 MHz	-13

(2) Desensitization frequency and power requirements for the frequencies 108.025 MHz to 111.975 MHz.

Frequency <sup>1</sup>	Maximum level of undesired signal at the receiver input (dBm)
88 MHz $\leq f \leq$ 102 MHz	15
104 MHz	10
106 MHz	5
107.9 MHz	-10

(3) Desensitization frequency and power requirements for the frequencies 112.00 MHz to 117.975 MHz.

Frequency <sup>1</sup>	Maximum level of undesired signal at the receiver input (dBm)
88 MHz $\leq f \leq$ 104 MHz	15
106 MHz	10
107 MHz	5
107.9 MHz	0

<sup>1</sup> The relationship is linear between single adjacent points designated by the above frequencies.

(d) Intermodulation Immunity. The receiver shall meet the requirements specified in paragraph (a) above in the presence of interference from two-signal, third order intermodulation products of two VHF-FM broadcast signals having levels in accordance with the following:

(1)  $2N_1 + N_2 + 72 \leq 0$  for VHF-FM sound broadcasting signals in the range 107.7–108 MHz; and

(2)  $2N_1 + N_2 + 3(24 - 20\log \Delta f/0.4) \leq 0$  for VHF-FM sound broadcasting signals below 107.7 MHz, where the frequencies of the two VHF-FM sound broadcasting signals produce, within the receiver, a two signal, third-order intermodulation product on the desired VDB frequency.

(3) In the formulas in paragraphs (d)(1) and (d)(2) above,  $N_1$  and  $N_2$  are the levels (dBm) of the two VHF FM sound broadcasting signals at the VHF data broadcast (VDB) receiver input. Neither level shall exceed the desensitization criteria set forth in paragraph (c).  $\Delta f = 108.1 - f_i$ , where  $f_i$  is the frequency of  $N_1$ , the VHF FM sound broadcasting signal closer to 108.1 MHz.

15. Section 87.169 is amended to read as follows:

**§ 87.169 Scope.**

This subpart contains class of station symbols and a frequency table which lists assignable frequencies. Frequencies in the Aviation Services will transmit communications for the safe, expeditious, and economic operation of aircraft and the protection of life and property in the air. Each class of land station may communicate in accordance with the particular sections of this part which govern these classes. Land stations in the Aviation Services in Alaska may transmit messages concerning sickness, death, weather, ice conditions or other matters relating to safety of life and property if there is no other established means of communications between the points in question and no charge is made for the communications service.

16. Section 87.171 is amended by adding, in alphabetical order, the symbols and class of station for GCO, RCO, RLD, RNV, and RPC, and by removing the symbol and class of station for FAP to read as follows:

**§ 87.171 Class of station symbols.**

\* \* \*

FAM – Aeronautical multicom

FAR – Aeronautical search and rescue

\* \* \*

FAW – Automatic weather observation

GCO – Ground Communication Outlet

MA – Aircraft (Air carrier and Private)

\* \* \*

MRT – ELT test

RCO – Remote Communications Outlet

RL – Radionavigation land (unspecified)

\* \* \*

RLB – Radiobeacon

RLD – RADAR/TEST

RLG – Glide path

\* \* \*

RLW – Microwave landing system

RNV – Radio Navigation Land/DME

RPC – Ramp Control

TJ – Aircraft earth station in the Aeronautical Mobile-Satellite Service

17. Section 87.173 is amended by revising the table in paragraph (b) to read as follows:

**§ 87.173 Frequencies.**

\* \* \* \* \*

(b) Frequency table:

Frequency or frequency band	Subpart	Class of station	Remarks
90-110 kHz	Q	RL	LORAN “C”.
190-285 kHz	Q	RLB	Radiobeacons.
200-285 kHz	O	FAC	Air traffic control.
325-405 kHz	Q	RLB	Radiobeacons.
410.0 kHz	F	MA	International direction-finding for use outside of United States
457.0 kHz	F	MA	Working frequency for aircraft on over-water flights.
500.0 kHz	F	MA	International calling and distress frequency for ships and aircraft on over-water flights.
510-535 kHz	Q	RLB	Radiobeacons.
2182.0 kHz	F	MA	International distress and calling.
2371.0 kHz			[Reserved]
2374.0 kHz			[Reserved]
2648.0 kHz	I	AX	Alaska station.
2851.0 kHz	I, J	MA, FAE, FAT	International HF (AFI); Flight test.
2854.0 kHz	I	MA, FAE	International HF (SAT).
2866.0 kHz	I	MA, FAE	Domestic HF (Alaska).
2869.0 kHz	I	MA, FAE	International HF (CEP).
2872.0 kHz	I	MA, FAE	International HF (NAT).
2875.0 kHz	I	MA, FAE	Domestic HF.
2878.0 kHz	I	MA1, FAE	Domestic HF; International HF (AFI).
2887.0 kHz	I	MA, FAE	International HF (CAR).
2899.0 kHz	I	MA, FAE	International HF (NAT).
2911.0 kHz	I	MA, FAE	Domestic HF.
2932.0 kHz	I	MA, FAE	International HF (NP).
2935.0 kHz	I	MA, FAE	International HF (NP).
2944.0 kHz	I	MA, FAE	International HF (SAM and MID).
2956.0 kHz	I	MA, FAE	Domestic HF.
2962.0 kHz	I	MA, FAE	International HF (NAT).
2971.0 kHz	I	MA, FAE	International HF (NAT).

2992.0 kHz	I	MA, FAE	International HF (MID).
2998.0 kHz	I	MA, FAE	International HF (CWP).
3004.0 kHz	I, J	MA, FAE, FAT	International HF (NCA); Flight test.
3013.0 kHz	I	MA, FAE	Long distance operational control
3016.0 kHz	I	MA, FAE	International HF (EA, NAT).
3019.0 kHz	I	MA1, FAE	Domestic HF; International HF (NCA).
3023.0 kHz	F, M, O	MA1, FAR, FAC	Search and rescue communications.
3281.0 kHz	K	MA, FAS	Lighter-than-air craft and aeronautical stations serving lighter-than-air craft.
3413.0 kHz	I	MA, FAE	International HF (CEP).
3419.0 kHz	I	MA, FAE	International HF (AFI).
3425.0 kHz	I	MA, FAE	International HF (AFI).
3434.0 kHz	I	MA1, FAE	Domestic HF.
3443.0 kHz	J	MA, FAT	
3449.0 kHz	I	MA, FAE	Domestic HF.
3452.0 kHz	I	MA, FAE	International HF (SAT).
3455.0 kHz	I	MA, FAE	International HF (CAR, CWP).
3467.0 kHz	I	MA, FAE	International HF (AFI, MID, SP).
3470.0 kHz	I	MA, FAE	Domestic HF and International HF (SEA).
3473.0 kHz	I	MA, FAE	International HF (MID).
3476.0 kHz	I	MA, FAE	International HF (INO, NAT).
3479.0 kHz	I	MA, FAE	International HF (EUR, SAM).
3485.0 kHz	I	MA, FAE	International HF (EA, SEA).
3491.0 kHz	I	MA, FAE	International HF (EA).
3494.0 kHz	I	MA, FAE	Long distance operational control.
4125.0 kHz	F	MA	Distress and safety with ships and coast stations.
4466.0 kHz			[Reserved]
4469.0 kHz			[Reserved]
4506.0 kHz			[Reserved]
4509.0 kHz			[Reserved]
4550.0 kHz	I	AX	Gulf of Mexico.
4582.0 kHz			[Reserved]
4585.0 kHz			[Reserved]
4601.0 kHz			[Reserved]
4604.0 kHz			[Reserved]
4627.0 kHz			[Reserved]
4630.0 kHz			[Reserved]
4645.0 kHz	I	AX	Alaska.
* * *			
21964.0 kHz	I	MA, FAE	Long distance operational control.
26618.5 kHz			[Reserved]
26620.0 kHz			[Reserved]

26621.5 kHz			[Reserved]
72.020-75.980 MHz	P	FA, AXO	Operational fixed; 20 kHz spacing.
75.000 MHz	Q	RLA	Marker beacon.
108.000 MHz	Q	RLT	
108.000-117.950 MHz	Q	RLO	VHF omni-range.
108.000-117.975 MHz	Q	DGP	Differential GPS.
108.050 MHz.	Q	RLT	
108.100-111.950 MHz	Q	RLL	ILS Localizer.
108.100 MHz	Q	RLT	
108.150 MHz	Q	RLT	
118.000-121.400 MHz	O	MA, FAC, FAW, GCO, RCO, RPC	25 kHz channel spacing.
121.500 MHz	G, H, I, J, K, M, O	MA, FAU, FAE, FAT, FAS, FAC, FAM, FAP	Emergency and distress.
121.600-121.925 MHz	I, O, L, Q	MA, FAC, MOU, RLT, GCO, RCO, RPC	25 kHz channel spacing.
121.950 MHz	K	FAS	
121.975 MHz	F	MA, FAW, FAC, MOU	Air traffic control operations.
122.000 MHz	F	MA, FAC, MOU	Air carrier and private aircraft enroute flight advisory service provided by FAA.
122.025 MHz	F	MA, FAC, MOU	Air traffic control operations.
122.050 MHz	F	MA, FAC, MOU	Air traffic control operations.
122.075 MHz	F	MA, FAW, FAC, MOU	Air traffic control operations.
122.100 MHz	F, O	MA, FAC, MOU	Air traffic control operations.
122.125-122.675 MHz	F	MA, FAC, MOU	Air traffic control operations; 25 kHz spacing.
122.700 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
122.725 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
122.750 MHz	F	MA2	Private fixed wing aircraft air-to-air communications.
122.775 MHz	K	MA, FAS	
122.800 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
122.825 MHz	I	MA, FAE	Domestic VHF.
122.850 MHz	H, K	MA, FAM, FAS	
122.875 MHz	I	MA, FAE	Domestic VHF.



122.900 MHz	F, H, L, M	MA, FAR, FAM, MOU	
122.925 MHz	H	MA2, FAM	
122.950 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
122.975 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
123.000 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
123.025 MHz	F	MA2	Helicopter air-to-air communications; Air traffic control operations.
123.050 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
123.075 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
123.100 MHz	M, O	MA, FAC, FAR	
123.125 MHz	J	MA, FAT	Itinerant.
123.150 MHz	J	MA, FAT	Itinerant.
123.175 MHz	J	MA, FAT	Itinerant.
123.200 MHz	J	MA, FAT	
123.225 MHz	J	MA, FAT	
123.250 MHz	J	MA, FAT	
123.275 MHz	J	MA, FAT	
123.300 MHz	K	MA, FAS	
123.325 MHz	J	MA, FAT	
123.350 MHz	J	MA, FAT	
123.375 MHz	J	MA, FAT	
123.400 MHz	J	MA, FAT	Itinerant.
123.425 MHz	J	MA, FAT	
123.450 MHz	J	MA, FAT	
123.475 MHz	J	MA, FAT	
123.500 MHz	K	MA, FAS	
123.525 MHz	J	MA, FAT	
123.550 MHz	J	MA, FAT	
123.575 MHz	J	MA, FAT	
* * *			
123.6-128.8 MHz	O	MA, FAC, FAW, GCO, RCO, RPC	25 kHz channel spacing.
128.825-132.000 MHz	I	MA, FAE	Domestic VHF; 25 kHz channel spacing.
132.025-135.975 MHz	O	MA, FAC, FAW, GCO, RCO, RPC	25 kHz channel spacing.
136.000-136.400 MHz	O, S	MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations; 25 kHz channel spacing.
136.425 MHz	O, S	MA, FAC,	Air traffic control operations.

136.450 MHz	O, S	FAW, GCO, RCO, RPC MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations.
136.475 MHz	O, S	MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations.
136.500-136.875 MHz	I	MA, FAE	Domestic VHF; 25 kHz channel spacing.
136.900 MHz	I	MA, FAE	International and domestic VHF.
136.925 MHz	I	MA, FAE	International and domestic VHF.
136.950 MHz	I	MA, FAE	International and domestic VHF.
136.975 MHz	I	MA, FAE	International and domestic VHF.
143.750 MHz			[Reserved]
143.900 MHz			[Reserved]
148.150 MHz			[Reserved]
156.300 MHz	F	MA	For communications with ship stations under specific conditions.
* * *			
960-1215 MHz	F, Q	MA, RL, RNV	Electronic aids to air navigation.
978.000 MHz	Q	RLT	
979.000 MHz	Q	RLT	
1030.000 MHz	Q	RLT	
1104.000 MHz	Q	RLT	
1300-1350 MHz	F, Q	MA, RLS	Surveillance radars and transponders.
1435-1535 MHz	F, J	MA, FAT	Aeronautical telemetry and telecommand operations.
1559-1610 MHz	Q	DGP	Differential GPS.
1559-1626.5 MHz	F, Q	MA, RL	Aeronautical radionavigation.
1646.5-1660.5 MHz	F	TJ	Aeronautical Mobile-Satellite (R).
2310-2390 MHz	J	MA, FAT	Aeronautical telemetry and telecommand operations.
2700-2900 MHz	Q	RLS, RLD	Airport surveillance and weather radar.
4200-4400 MHz	F	MA	Radio altimeters.
5000-5250 MHz	Q	MA, RLW	Microwave landing systems.
5031.000 MHz	Q	RLT	
5350-5470 MHz	F	MA	Airborne radars and associated airborne beacons.
8750-8850 MHz	F	MA	Airborne doppler radar.
9000-9200 MHz	Q	RLS, RLD	Land-based radar.
9300-9500 MHz	F, Q	MA	Airborne radars and associated airborne beacons.
13250-13400 MHz	F	MA	Airborne doppler radar.
14000-14400 MHz	F, Q	MA, RL	Aeronautical radionavigation.
15400-15700 MHz	Q	RL	Aeronautical radionavigation.
24750-25050 MHz	F, Q	MA, RL	Aeronautical radionavigation.
32300-33400 MHz	F, Q	MA, RL	Aeronautical radionavigation.

18. Section 87.187 is amended by revising paragraph (q) and adding a new paragraph (ee) to read as follows:

**§ 87.187 Frequencies.**

\* \* \* \* \*

(q)(1) The frequencies in the bands 1545.000-1559.000 MHz, 1610.000-1626.500 MHz, 1646.500-1660.500 MHz, and 5000.000-5150.000 MHz are authorized for use by the Aeronautical Mobile-Satellite (R) Service. The use of the bands 1544.000-1545.000 MHz (space-to-Earth) and 1645.500-1646.500 MHz (Earth-to-space) by the Mobile-Satellite Service is limited to distress and safety operations. In the frequency bands 1549.500-1558.500 MHz, 1610.000-1626.500 MHz 1651.000-1660.000 MHz, and 5000.000-5150.000 MHz, the Aeronautical Mobile-Satellite (R) requirements that cannot be accommodated in the 1545.000-1549.5000 MHz, 1558.500-1559.000 MHz, 1646.500-1651.000 MHz, and 1660.000-1660.500 MHz bands shall have priority access with real-time preemptive capability for communications in the Mobile-Satellite Service. Systems not interoperable with the Aeronautical Mobile-Satellite (R) Service shall operate on a secondary basis. Account shall be taken of the priority of safety-related communications in the Mobile-Satellite Service.

(2) In the frequency bands 1549.5-1558.5 MHz, 1610-1626.5 MHz, 1651-1660 MHz and 5000-5150 MHz, the Aeronautical-Mobile-Satellite (Route) Service requirements that cannot be accommodated in the 1545-1549.5 MHz, 1558.5-1559 MHz, 1646.5-1651 MHz and 1660-1660.5 MHz bands shall have priority access with real-time preemptive capability for communications in the mobile satellite service. Systems not interoperable with the Aeronautical Mobile-Satellite (Route) Service shall operate on a secondary basis. Account shall be taken of the priority of safety-related communications in the mobile-satellite service.

\* \* \* \* \*

(ee) The frequency 121.95 MHz is authorized for air-to-ground and air-to-air communications for aircraft up to 13000 feet above mean sea level (AMSL) within the area bounded by the following coordinates (all coordinates are referenced to North American Datum 1983 (NAD83)):

32-35-00 N. Lat.; 117-12-00 W. Long.

32-42-00 N. Lat.; 116-56-00 W. Long.

32-41-00 N. Lat.; 116-41-00 W. Long.

32-35-00 N. Lat.; 116-38-00 W. Long.

32-31-00 N. Lat.; 117-11-00 W. Long.

19. Section 87.189 is amended by revising paragraph (c) to read as follows:

**§ 87.189 Requirements for public correspondence equipment and operations.**

\* \* \* \* \*

(c) A continuous watch must be maintained on the frequencies used for safety and regularity of flight while public correspondence communications are being handled. For aircraft earth stations, this requirement is satisfied by compliance with the priority and preemptive access requirements of § 87.187(q).

\* \* \* \* \*

20. Section 87.215 is amended by redesignating paragraphs (c) and (d) as paragraphs (f) and (g), respectively, and by adding new paragraphs (c), (d), and (e) to read as follows:

**§ 87.215 Supplemental Eligibility.**

\* \* \* \* \*

(c) At an airport where only one unicom may be licensed, eligibility for new unicom licenses is restricted to State or local government entities, and to nongovernmental organizations (NGOs) that are authorized to apply for the license by a State or local government entity whose primary mission is the provision of public safety services. All applications submitted by NGOs must be accompanied by a new, written certification of support (for the NGO applicant to operate the applied for station) by the state or local government entity. Applications for a unicom license at the same airport, where only one unicom may be licensed, that are filed by two or more applicants meeting these eligibility criteria must be resolved through settlement or technical amendment.

(d) At an airport where only one unicom may be licensed, the license may be assigned or transferred only to an entity meeting the requirements of paragraph (c) of this section.

(e) An applicant for renewal of a unicom license shall be granted a presumptive renewal expectancy regardless of whether the applicant is eligible for a new unicom license under paragraph (c) of this section. Unless the renewal expectancy is defeated, applications that are mutually exclusive with the renewal application will not be accepted. The renewal expectancy may be defeated only upon a determination, following a hearing duly designated on the basis of a petition to deny or on the Commission's own motion, that the renewal applicant has not provided substantial service. For purposes of this paragraph, substantial service means service which is sound, favorable, and substantially above a level of mediocre service during the applicant's past license term. If the renewal expectancy is defeated, the renewal application will be dismissed unless the renewal applicant is eligible for a new unicom license pursuant to paragraph (c) of this section.

\* \* \* \* \*

21. Section 87.217 is amended by revising paragraph (a) to read as follows:

**§ 87.217 Frequencies.**

(a) Only one unicom frequency will be assigned at any one airport. Applicants must request a particular frequency, which will be taken into consideration when the assignment is made. The frequencies assignable to unicom are:

\* \* \* \* \*

22. Section 87.421 is amended by revising paragraph (c) to read as follows:

**§ 87.421 Frequencies.**

\* \* \* \* \*

(c) Frequencies in the band 121.600-121.925 MHz are available to control towers and RCOs for general air traffic control communications. The antenna heights shall be restricted to the minimum necessary to achieve the required coverage. Channel spacing is 25 kHz.

\* \* \* \* \*

16. Section 87.475 is amended by revising paragraphs (b)(2) and (c)(2) to read as follows:

**§ 87.475 Frequencies.**

\* \* \* \* \*

(b) \* \* \* \* \*

(2) Radiobeacon stations enable an aircraft station to determine bearing or direction in relation to the radiobeacon station. Radiobeacons operate in the bands 190-285 kHz; 325-435 kHz; 510-525 kHz; and 525-535 kHz. Radiobeacons may be authorized, primarily for off-shore use, in the band 525-535 kHz on a non-interference basis to travelers information stations.

\* \* \* \* \*

(c) \* \* \* \* \*

(2) The frequencies available for assignment to radionavigation land test stations for the testing of airborne receiving equipment are 108.000 and 108.050 MHz for VHF omni-range; 108.100 and 108.150 MHz for localizer; 334.550 and 334.700 MHz for glide slope; 978 and 979 MHz (X channel)/1104 MHz (Y channel) for DME; 1030 MHz for air traffic control radar beacon transponders; 1090 MHz for Traffic Alert and Collision Avoidance Systems (TCAS); and 5031.0 MHz for microwave landing systems. Additionally, the frequencies in paragraph (b) of this section may be assigned to radionavigation land test stations after coordination with the FAA. The following conditions apply:

\* \* \* \* \*

17. Subpart R is reserved.

**Subpart R – [Reserved]**

18. Section 87.529 is amended to read as follows:

**§ 87.529 Frequencies.**

Prior to submitting an application, each applicant must notify the applicable FAA Regional Frequency Management Office. Each application must be accompanied by a statement showing the name of the FAA Regional Office and date notified. The Commission will assign the frequency. Normally, frequencies available for air traffic control operations set forth in Subpart E will be assigned to an AWOS, ASOS, or to an ATIS. When a licensee has entered into an agreement with the FAA to operate the same station as both an AWOS and as an ATIS, or as an ASOS and an ATIS, the same frequency will be used in both modes of operation.

**PART 95—PERSONAL RADIO SERVICES**

19. The authority citation for Part 95 continues to read as follows:

**AUTHORITY: Sections 4, 303, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303.**

20. Section 95.655 is amended by revising paragraph (a) to read as follows:

**§ 95.655 Frequency Capability**

(a) No transmitter will be certificated for use in the CB service if it is equipped with a frequency capability not listed in § 95.625, and no transmitter will be certificated for use in the GMRS if it is equipped with a frequency capability not listed in § 95.621, unless such transmitter is also certificated for use in another radio service for which the frequency is authorized and for which certification is also required. (Transmitters with frequency capability for the Amateur Radio Services and Military Affiliate Radio System will not be certificated.)

\* \* \*

\* \* \* \* \*

**APPENDIX B: PROPOSED RULES**

Parts 2, 80, and 87 of title 47 of the Code of Federal Regulations are proposed to be amended as follows:

Part 2 of title 47 of the Code of Federal Regulations is proposed to be amended as follows:

**PART 2 -- FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS;  
GENERAL RULES AND REGULATIONS**

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations, is amended as follows:

- a. Revise page 66.

- b. In the list of United States (US) footnotes, remove footnote US292.

**§ 2.106 Table of Frequency Allocations.**

The revisions and additions read as follows:

\* \* \* \* \*

14-14.25 FIXED-SATELLITE (Earth-to-space) 5.484A 5.506 5.457A 5.506B 5.457B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504C 5.506A Space research			14-14.2 Space research	14-14.2 FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space) Space research	Satellite Communications (25)
5.504A 5.505			14.2-14.4	14.2-14.4 FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space) Mobile except aeronautical Mobile	Satellite Communications (25) Fixed Microwave (101)
14.25-14.3 FIXED-SATELLITE (Earth-to-space) 5.484A 5.506 5.457A 5.457B 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.506A 5.508A Space research					
5.504A 5.505 5.508 5.509					
14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.506 5.506B 5.457A 5.457B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.506A 5.509A Radionavigation-satellite	14.3-14.4 FIXED-SATELLITE (Earth-to-space) 5.484A 5.506 5.457A 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite	14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.506 5.457A 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.506A 5.509A Radionavigation-satellite			
5.504A	5.504A	5.504A			
14.4-14.47 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.506A 5.509A Space research (space-to-Earth)			14.4-14.47 Fixed Mobile	14.4-14.47 FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space)	Satellite Communications (25)
5.504A					
14.47-14.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy			14.47-14.5 Fixed Mobile	14.47-14.5 FIXED-SATELLITE (Earth-to-space) Mobile-satellite (Earth-to-space)	
5.149 5.504A			US203 US342	US203 US342	



Part 80 of title 47 of the Code of Federal Regulations is proposed to be amended as follows:

**PART 80 -- STATIONS IN THE MARITIME SERVICES**

1. The authority citation for Part 80 continues to read as follows:

AUTHORITY: Secs. 4, 303, 307(e), 309, and 332, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, 307(e), 309, and 332, unless otherwise noted. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. 151-155, 301-609; 3 UST 3450, 3 UST 4726, 12 UST 2377.

2. Section 80.375 is amended by removing paragraph (d)(2)(vi), redesignating paragraph (d)(2)(vii) as paragraph (d)(2)(vi), and revising paragraph (d)(1) to read as follows:

**§ 80.375 Radiodetermination frequencies.**

\* \* \* \* \*

(d) Radiodetermination frequency bands above 2400 MHz. (1) The radiodetermination frequency bands assignable to ship and shore stations including ship and shore radar and transponder stations are as follows: 2450-2483.5 MHz; 2900-3100 MHz; 5460-5650 MHz; and 9300-9500 MHz.

Part 87 of title 47 of the Code of Federal Regulations is proposed to be amended as follows:

### **PART 87—AVIATION SERVICES**

1. The authority citation for Part 87 continues to read as follows:

**AUTHORITY:** 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, 307(e) unless otherwise noted.  
**Interpret or apply** 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. 151-156, 301-609.

2. Section 87.107 is amended by removing paragraph (a)(2), redesignating paragraph (a)(3) as (a)(2), and revising paragraph (a)(2) to read as follows:

#### **§ 87.107 Station identification.**

(a) \* \* \*

(3) The type of aircraft followed by the characters of the registration marking ("N" number) of the aircraft, omitting the prefix letter "N." When communication is initiated by a ground station, an aircraft station may use the type of aircraft followed by the last three characters of the registration marking. Notwithstanding any other provision of this section, an aircraft being moved by maintenance personnel from one location in an airport to another location in that airport may be identified by a station identification consisting of the name of the company owning or operating the aircraft, followed by the word "Maintenance" and additional alphanumeric characters of the licensee's choosing.

\* \* \* \* \*

3. Section 87.137 is amended by revising the table in paragraph (a) to read as follows:

#### **§ 87.137 Types of emission.**

(a) \* \* \*

Class of emission	Emission designator	Authorized bandwidth (kilohertz)		
		Below 50 MHz	Above 50 MHz	Frequency deviation
* * *	* * *	* * *	* * *	* * *
F1B <sup>1</sup>	2K40F1B	2.5		
F1D <sup>18</sup>	1M70F1D		1800 kHz	312.5 kHz
F2D	5M0F2D		(9)	
* * *	* * *	* * *	* * *	* * *

\* \* \* \* \*

<sup>1</sup> A1A, F1B, J2A and J2B are permitted provided they do not cause harmful interference to H2B, J3E, J7B and J9W.

\* \* \* \* \*

<sup>9</sup> To be specified on license.

\* \* \* \* \*

<sup>18</sup> Authorized only for Universal Access Transceiver use at 978 MHz.

\* \* \* \* \*

4. Section 87.139 is amended by adding paragraph (l) to read as follows:

**§ 87.139 Emission limitations.**

\* \* \* \* \*

(l)(1) For Universal Access Transceiver transmitters, the average emissions measured in a 100 kHz bandwidth must be attenuated below the maximum emission level by at least:

Frequency (MHz)	Attenuation (dB)
+/- 0.5	0
+/- 1.0	18
+/- 2.25	50
+/- 3.25	60

The mask shall be defined by drawing straight lines through the above points on log semi-paper.

(2) Universal Access Transceiver transmitters with an output power of 5 Watts or more must limit their emissions by at least  $43 + 1 - \log(P)$  dB on any frequency removed from the assigned frequency by more than 250% of the occupied bandwidth. Occupied bandwidth is defined as 99% of the signal power measured with a bandwidth of 100 kHz. P in the above equation is the average transmitter power measured in Watts.

(3) Universal Access Transceiver transmitters with less than 5 Watts of output power must limit their emissions by at least 40 dB relative to the carrier peak on any frequency removed from the assigned frequency by more than 250% of the occupied bandwidth. Occupied bandwidth is defined as 99% of the signal power measured with a bandwidth of 100 kHz.

5. Section 87.141 is amended by adding paragraph (k) to read as follows:

**§ 87.141 Modulation requirements.**

(a) \* \* \*

(k) Universal Access Transceiver transmitters must use F1D modulation without phase discontinuities.

\* \* \* \* \*

6. Section 87.173 is amended by revising the table paragraph (b) to read as follows:

**§ 87.173 Frequencies.**

\* \* \* \* \*

(b) Frequency table:

Frequency or frequency band	Subpart	Class of station	Remarks
90-110 kHz	Q	RL	LORAN "C".
190-285 kHz	Q	RLB	Radiobeacons.
200-285 kHz	O	FAC	Air traffic control.
325-405 kHz	O	FAC	Air traffic control.
325-435 kHz	Q	RLB	Radiobeacons.
410.0 kHz	F	MA	International direction-finding for use outside of United States
457.0 kHz	F	MA	Working frequency for aircraft on over-water flights.
500.0 kHz	F	MA	International calling and distress frequency for ships and aircraft on over-water flights.
510-535 kHz	Q	RLB	Radiobeacons.
2182.0 kHz	F	MA	International distress and calling.
2371.0 kHz			[Reserved]
2374.0 kHz			[Reserved]
2648.0 kHz	I	AX	Alaska station.
2850.0-3025.0 kHz	I	MA, FAE	International HF.
2851.0 kHz	I, J	MA, FAE, FAT	International HF; Flight test.
2866.0 kHz	I	MA, FAE	Domestic HF (Alaska).
2875.0 kHz	I	MA, FAE	Domestic HF.
2878.0 kHz	I	MA1, FAE	Domestic HF; International HF.
2911.0 kHz	I	MA, FAE	Domestic HF.
2956.0 kHz	I	MA, FAE	Domestic HF.
3004.0 kHz	I, J	MA, FAE, FAT	International HF; Flight test.
3019.0 kHz	I	MA1, FAE	Domestic HF; International HF.
3023.0 kHz	F, M, O	MA1, FAR, FAC	Search and rescue communications.
3281.0 kHz	K	MA, FAS	Lighter-than-air craft and aeronautical stations serving lighter-than-air craft.
3400.0-3500.0 kHz	I	MA, FAE	International HF.
3434.0 kHz	I	MA1, FAE	Domestic HF.
3443.0 kHz	J	MA, FAT	
3449.0 kHz	I	MA, FAE	Domestic HF.
3470.0 kHz	I	MA, FAE	Domestic HF; International HF.
4125.0 kHz	F	MA	Distress and safety with ships and coast stations.
4466.0 kHz			[Reserved]
4469.0 kHz			[Reserved]
4506.0 kHz			[Reserved]
4509.0 kHz			[Reserved]
4550.0 kHz	I	AX	Gulf of Mexico.
4582.0 kHz			[Reserved]

4585.0 kHz			[Reserved]
4601.0 kHz			[Reserved]
4604.0 kHz			[Reserved]
4627.0 kHz			[Reserved]
4630.0 kHz			[Reserved]
4645.0 kHz	I	AX	Alaska.
4650.0-4700.0 kHz	I	MA, FAE	International HF.
4672.0 kHz	I	MA1, FAE	Domestic HF.
4947.5 kHz	I	AX	Alaska.
5036.0 kHz	I	AX	Gulf of Mexico.
5122.5 kHz	I	AX	Alaska.
5167.5 kHz	I	FA	Alaska emergency.
5310.0 kHz	I	AX	Alaska.
5451.0 kHz	J	MA, FAT	Flight test.
5463.0 kHz	I	MA1, FAE	Domestic HF.
5469.0 kHz	J	MA, FAT	Flight test.
5472.0 kHz	I	MA, FAE	Domestic HF.
5450.0-5680.0 kHz	I	MA, FAE	International HF.
5484.0 kHz	I	MA, FAE	Domestic HF.
5490.0 kHz	I	MA, FAE	Domestic HF.
5496.0 kHz	I	MA, FAE	Domestic HF.
5508.0 kHz	I	MA1, FAE	Domestic HF.
5571.0 kHz	J	MA, FAT	Flight test.
5631.0 kHz	I	MA, FAE	Domestic HF.
5680.0 kHz	F, M, O	MA1, FAC, FAR	Search and rescue communications.
5887.5 kHz	I	AX	Alaska.
6525.0-6685.0 kHz	I	MA, FAE	International HF.
6550.0 kHz	J	MA, FAT	Flight Test.
6580.0 kHz	I	MA, FAE	Domestic HF.
6604.0 kHz	I	MA, FAE	Domestic HF.
8015.0 kHz	I	AX	Alaska.
8364.0 kHz	F	MA	Search and rescue communications.
8815.0-8965.0 kHz	I	MA, FAE	International HF.
8822.0 kHz	J	MA, FAT	Flight Test.
8855.0 kHz	I	MA, FAE	Domestic HF; international HF.
8876.0 kHz	I	MA, FAE	Domestic HF.
10005.0-10100.0 kHz	I	MA, FAE	International HF.
10045.0 kHz	J	MA, FAT	Flight Test.
10066.0 kHz	I	MA, FAE	Domestic HF; international HF.
11275.0-11400.0 kHz	J	MA, FAE	International HF.
11288.0 kHz	J	MA, FAT	Flight Test.
11306.0 kHz	J	MA, FAT	Flight Test.
11357.0 kHz	I	MA, FAE	Domestic HF.

11363.0 kHz	I	MA, FAE	Domestic HF.
13260.0-13360.0 kHz	I	MA, FAE	International HF.
13312.0 kHz	I, J	MA, FAE, FAT	International HF; Flight Test.
17900.0-17970.0 kHz	I	MA, FAE	International HF
17964.0 kHz	J	MA, FAT	Flight Test.
21924.0-22000.0 kHz	I	MA, FAE	International HF.
21931.0 kHz	J	MA, FAT	Flight Test.
72.020-75.980 MHz	P	FA, AXO	Operational fixed; 20 kHz spacing.
75.000 MHz	Q	RLA	Marker beacon.
108.000 MHz	Q	RLT	
108.000-117.950 MHz	Q	RLO	VHF omni-range.
108.000-117.975 MHz	Q	DGP	Differential GPS.
108.050 MHz.	Q	RLT	
108.100-111.950 MHz	Q	RLL	ILS Localizer.
108.100 MHz	Q	RLT	
108.150 MHz	Q	RLT	
118.000-121.400 MHz	O	MA, FAC, FAW, GCO, RCO, RPC	25 kHz channel spacing.
121.500 MHz	G, H, I, J, K, M, O	MA, FAU, FAE, FAT, FAS, FAC, FAM, FAP	Emergency and distress.
121.600-121.925 MHz	O, L, Q	MA, FAC, MOU, RLT, GCO, RCO, RPC	25 kHz channel spacing.
121.950 MHz	K	FAS	
121.975 MHz	F	MA2, FAW, FAC, MOU	Air traffic control operations.
122.000 MHz	F	MA, FAC, MOU	Air carrier and private aircraft enroute flight advisory service provided by FAA.
122.025 MHz	F	MA2, FAW, FAC, MOU	Air traffic control operations.
122.050 MHz	F	MA, FAC, MOU	Air traffic control operations.
122.075 MHz	F	MA2, FAW, FAC, MOU	Air traffic control operations.
122.100 MHz	F, O	MA, FAC, MOU	Air traffic control operations.
122.125-122.675 MHz	F	MA2, FAC, MOU	Air traffic control operations; 25 kHz spacing.
122.700 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
122.725 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
122.750 MHz	F	MA2	Private fixed wing aircraft air-to-air communications.

122.775 MHz	K	MA, FAS	
122.800 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
122.825 MHz	I	MA, FAE	Domestic VHF.
122.850 MHz	H, K	MA, FAM, FAS	
122.875 MHz	I	MA, FAE	Domestic VHF.
122.900 MHz	F, H, L, M	MA, FAR, FAM, MOU	
122.925 MHz	H	MA2, FAM	
122.950 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
122.975 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
123.000 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
123.025 MHz	F	MA2	Helicopter air-to-air communications; Air traffic control operations.
123.050 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
123.075 MHz	G, L	MA, FAU, MOU	Unicom at airports with no control tower; Aeronautical utility stations.
123.100 MHz	M, O	MA, FAC, FAR	
123.125 MHz	J	MA, FAT	Itinerant.
123.150 MHz	J	MA, FAT	Itinerant.
123.175 MHz	J	MA, FAT	Itinerant.
123.200 MHz	J	MA, FAT	
123.225 MHz	J	MA, FAT	
123.250 MHz	J	MA, FAT	
123.275 MHz	J	MA, FAT	
123.300 MHz	K	MA, FAS	
123.325 MHz	J	MA, FAT	
123.350 MHz	J	MA, FAT	
123.375 MHz	J	MA, FAT	
123.400 MHz	J	MA, FAT	Itinerant.
123.425 MHz	J	MA, FAT	
123.450 MHz	J	MA, FAT	
123.475 MHz	J	MA, FAT	
123.500 MHz	K	MA, FAS	
123.525 MHz	J	MA, FAT	
123.550 MHz	J	MA, FAT	
123.575 MHz	J	MA, FAT	
123.6-128.8 MHz	O	MA, FAC, FAW, GCO, RCO, RPC	25 kHz channel spacing.
128.825-132.000 MHz	I	MA, FAE	Domestic VHF; 25 kHz channel spacing.

132.025-135.975 MHz	O	MA, FAC, FAW, GCO, RCO, RPC	25 kHz channel spacing.
136.000-136.400 MHz	O, S	MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations; 25 kHz channel spacing.
136.425 MHz	O, S	MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations.
136.450 MHz	O, S	MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations.
136.475 MHz	O, S	MA, FAC, FAW, GCO, RCO, RPC	Air traffic control operations.
136.500-136.875 MHz	I	MA, FAE	Domestic VHF; 25 kHz channel spacing.
136.900 MHz	I	MA, FAE	International and domestic VHF.
136.925 MHz	I	MA, FAE	International and domestic VHF.
136.950 MHz	I	MA, FAE	International and domestic VHF.
136.975 MHz	I	MA, FAE	International and domestic VHF.
156.300 MHz	F	MA	For communications with ship stations under specific conditions.
156.375 MHz	F	MA	For communications with ship stations under specific conditions; Not authorized in New Orleans Vessel traffic service area.
156.400 MHz	F	MA	For communications with ship stations under specific conditions.
156.425 MHz	F	MA	For communications with ship stations under specific conditions.
156.450 MHz	F	MA	For communications with ship stations under specific conditions.
156.625 MHz	F	MA	For communications with ship stations under specific conditions.
156.800 MHz	F	MA	Distress, safety and calling frequency; For communications with ship stations under specific conditions.
156.900 MHz	F	MA	For communications with ship stations under specific conditions.
157.425 MHz	F	MA	For communications with commercial fishing vessels under specific conditions except in Great Lakes and St. Lawrence Seaway Areas.
243.000 MHz	F	MA	Emergency and distress frequency for use of survival craft and emergency locator transmitters.
328.600-335.400 MHz	Q	RLG	ILS glide path.
334.550 MHz	Q	RLT	
334.700 MHz	Q	RLT	
406.025 MHz	F, G, H, I, J, K, M, O	MA, FAU, FAE, FAT, FAS, FAC,	Emergency and distress.



		FAM, FAP	
960-1215 MHz	F, Q	MA, RL, RNV	Electronic aids to air navigation.
978.000 MHz	Q	RLT	
979.000 MHz	Q	RLT	
1030.000 MHz	Q	RLT	
1104.000 MHz	Q	RLT	
1300-1350 MHz	F, Q	MA, RLS	Surveillance radars and transponders.
1435-1535 MHz	F, J	MA, FAT	Aeronautical telemetry and telecommand operations.
1559-1610 MHz	Q	DGP	Differential GPS.
1559-1626.5 MHz	F, Q	MA, RL	Aeronautical radionavigation.
1646.5-1660.5 MHz	F	TJ	Aeronautical Mobile-Satellite (R).
2310-2390 MHz	J	MA, FAT	Aeronautical telemetry and telecommand operations.
2700-2900 MHz	Q	RLS, RLD	Airport surveillance and weather radar.
4200-4400 MHz	F	MA	Radio altimeters.
5000-5250 MHz	Q	MA, RLW	Microwave landing systems.
5031.000 MHz	Q	RLT	
5350-5470 MHz	F	MA	Airborne radars and associated airborne beacons.
8750-8850 MHz	F	MA	Airborne doppler radar.
9000-9200 MHz	Q	RLS, RLD	Land-based radar.
9300-9500 MHz	F, Q	MA	Airborne radars and associated airborne beacons.
13250-13400 MHz	F	MA	Airborne doppler radar.
15400-15700 MHz	Q	RL	Aeronautical radionavigation.
24750-25050 MHz	F, Q	MA, RL	Aeronautical radionavigation.
32300-33400 MHz	F, Q	MA, RL	Aeronautical radionavigation.

7. Section 87.187 is amended by revising paragraph x and adding paragraph (ff) to read as follows:

**§ 87.187 Frequencies.**

\* \* \*

(x) The frequency bands 24250-24450 MHz, 24650-24750 MHz and 32300-33400 MHz are available for airborne radionavigation devices.

\* \* \*

(ff) The frequency 978 MHz is authorized for Universal Access Transceiver data transmission.

\* \* \* \* \*

8. Section 87.263 is amended by revising paragraphs (d) and (e) and adding paragraph (g) to read as follows:

**§ 87.263 Frequencies.**

(a) \* \* \*

(d) International HF Service. High frequencies for enroute stations serving international flight operations on the Major World Air Route Areas (MWARA's), as defined in the international Radio Regulations and the ICAO Assignment Plan, may be authorized in accordance with Appendix S27 to the Radio Regulations.

(e) Long distance operational control. Long distance operational control frequencies provide communications between aeronautical enroute stations and aircraft stations anywhere in the world for control of the regularity and efficiency of flight and safety of aircraft. World-wide frequencies are not assigned by administrations for MWARA and Regional and Domestic Air Route Area (RDARA). Long distance operational control frequencies will may be authorized in accordance with Appendix S27 of the international Radio Regulations.

\* \* \*

(g) The frequency 978 MHz is authorized for Universal Access Transceiver data transmission.

\* \* \* \* \*

9. Section 87.345 is amended by adding paragraph (f) to read as follows:

**§ 87.345 Scope of service.**

\* \* \*

(f) Transmissions by aeronautical utility mobile stations for Universal Access Transceiver service are authorized.

\* \* \* \* \*

10. Section 87.349 is amended by adding paragraph (e) to read as follows:

**§ 87.349 Frequencies.**

(a) \* \* \*

(e) The frequency 978.0 MHz is authorized for Universal Access Transceiver data transmission.

\* \* \* \* \*

11. Section 87.375 is amended by adding paragraph (e) to read as follows:

**§ 87.375 Frequencies.**

(a) \* \* \*

(e) The frequency 978.0 MHz is authorized for Universal Access Transceiver data transmission.

\* \* \* \* \*

12. Section 87.417 is amended by adding paragraph (c) to read as follows:

**§ 87.417 Scope of service.**

(a) \* \* \*

(c) The frequency 978.0 MHz is authorized for Universal Access Transceiver data transmission.

\* \* \* \* \*

13. Section 87.421 is amended by revising paragraph (c) to read as follows:

**§ 87.421 Frequencies.**

\* \* \*

(c) Frequencies in the bands 118.000-121.400 MHz, 121.600-121.925 MHz, 123.600-128.800 MHz, and 132.025-135.975 MHz are available to control towers and RCOs for communications with ground vehicles and aircraft on the ground. The antenna heights shall be restricted to the minimum necessary to achieve the required coverage. Channel spacing is 25 kHz

\* \* \* \* \*

21. Section 87.475 is amended by adding paragraph (b)(9) and revising paragraphs (c)(1) and (c)(2) to read as follows

**§ 87.475 Frequencies.**

(a) \* \* \*

(b) \* \* \*

(9) 978.0 MHz is authorized for Universal Access Transceiver service.

(c) Frequencies available for radionavigation land test stations. (1) The frequencies set forth in § 87.187(c), (e) through (j), (r), (t), and (ff) and § 87.475(b) (6) through (10), and (12) may be assigned to radionavigation land test stations for the testing of aircraft transmitting equipment that normally operate on these frequencies and for the testing of land-based receiving equipment that operate with airborne radionavigation equipment.

(2) The frequencies available for assignment to radionavigation land test stations for the testing of airborne receiving equipment are 108.000 and 108.050 MHz for VHF omni-range; 108.100 and 108.150 MHz for localizer; 334.550 and 334.700 MHz for glide slope; 978 and 979 MHz (X channel)/1104 MHz (Y channel) for DME; 978 MHz for Universal Access Transceiver; 1030 MHz for air traffic control radar beacon transponders; and 5031.0 MHz for microwave landing systems. Additionally, the frequencies in paragraph (b) of this section may be assigned to radionavigation land test stations after coordination with the FAA. The following conditions apply:

(i) The maximum power authorized on the frequencies 108.150 and 334.550 MHz is 1 milliwatt. The maximum power authorized on all other frequencies is one watt.

(ii) The pulse repetition rate (PRR) of the 1030 MHz ATC radar beacon test set will be 235 pulses per second (pps)  $\pm 5$ pps.

(iii) The assignment of 108.000 MHz is subject to the condition that no interference will be caused to the reception of FM broadcasting stations and stations using the frequency are not protected against interference from FM broadcasting stations.

\* \* \*

**APPENDIX C****Parties Submitting Comments and Reply Comments in WT Docket No. 01-289**Comments

ARINC and Air Transport Association of America (ARINC/ATA)  
Association of Federal Communications Consulting Engineers (AFCCE)  
The Boeing Company (Boeing)  
Federal Aviation Administration (FAA)  
Hammett & Edison, Inc. (Hammett & Edison)  
Honeywell International, Inc. (Honeywell)  
Rockwell Collins, Inc. (Rockwell Collins)  
Société Internationale de Télécommunications Aéronautiques (SITA)  
UPS Aviation Technologies, Inc. (UPS)

Reply Comments

ARINC/ATA  
Boeing  
FAA  
Globalstar L.P. (Globalstar)  
Inmarsat Ltd. (Inmarsat)  
Rockwell Collins  
SITA

Ex parte presentations

Boeing  
Rockwell Collins

## APPENDIX D

## INITIAL REGULATORY FLEXIBILITY ANALYSIS

As required by the Regulatory Flexibility Act (RFA),<sup>354</sup> the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities of the policies and rules proposed in the *Further Notice of Proposed Rule Making* in WT Docket No. 01-289 (*Further Notice*). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Further Notice* as provided in paragraph 100 of the item, *supra*. The Commission will send a copy of the *Further Notice*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.<sup>355</sup> In addition, the *Further Notice* and IRFA (or summaries thereof) will be published in the Federal Register.<sup>356</sup>

**A. Need for, and Objectives of, the Proposed Rules:**

The proposed rules in the *Further Notice* are intended to further streamline, consolidate and clarify the Commission's Part 87 Rules; remove unnecessary or duplicative requirements; address new international requirements; and promote flexibility and efficiency in the use of aviation radio equipment in a manner that will further aviation safety. In the *Further Notice*, we request comment specifically on whether we should: (1) accommodate use of Universal Access Transceiver technology on the frequency 978 MHz; (2) eliminate all requirements specific to data rates and modulation types to accommodate new technologies, such as Inmarsat's new 64 kbps service; (3) enable the use of non-geostationary satellite networks for AMS(R)S; (4) broaden the AMS(R)S regulations to take account of satellite systems other than Inmarsat's; (5) adopt additional technical requirements for AMS(R)S; (6) authorize use of the 1990-2025 MHz band for AMS(R)S; (7) identify new uses for the frequencies formerly reserved for the Civil Air Patrol; (8) remove the radionavigation allocation at 14000-14400 MHz; (9) streamline the listing of HF band frequencies in Part 87 frequency tables; (10) expand the availability of air traffic control spectrum for ground control communications; (11) codify the terms of a waiver that has permitted the certification of a back-up safety device designed to supplement conventional 121.5 MHz Emergency Locator Transmitters (ELTs); and (12) codify the terms of a waiver that authorizes a special station identification format to be used only by aircraft being operated by maintenance personnel from one location in an airport to another location in an airport.

**B. Legal Basis:**

Authority for issuance of this item is contained in Sections 4(i), 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(r) and 403.

**C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply:**

Under the RFA, small entities may include small organizations, small businesses, and small governmental jurisdictions, or entities.<sup>357</sup> The RFA directs agencies to provide a description of and,

<sup>354</sup> See 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

<sup>355</sup> See 5 U.S.C. § 603(a).

<sup>356</sup> *Id.*

<sup>357</sup> 5 U.S.C. § 601(6).

where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.<sup>358</sup> The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>359</sup> In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.<sup>360</sup> A small business concern is one that: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.<sup>361</sup> Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency after consultation with the Office of Advocacy of the SBA, and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

Small businesses in the aviation and marine radio services use a marine very high frequency (VHF) radio, any type of emergency position indicating radio beacon (EPIRB) and/or radar, a VHF aircraft radio, and/or any type of emergency locator transmitter (ELT). The Commission has not developed a definition of small entities specifically applicable to these small businesses. For purposes of this IRFA, therefore, the applicable definition of a small entity is that under SBA rules applicable to “Cellular and Other Wireless Telecommunications.” This definition provides that a “small entity” for purposes of public coast station licensees, a subgroup of marine radio users, consists of all such firms having 1,500 or fewer employees.<sup>362</sup> According to Census bureau data for 1997, there were 977 firms, total, in the category of “Cellular and other Wireless Telecommunications,” that operated for the entire year.<sup>363</sup> Of this total, 965 firms had employment of 999 or fewer employees, and an additional 12 firms had employment of 1,000 employees or more.<sup>364</sup> Thus under this size standard, the majority of firms can be considered small.

The proposed amendments may also affect small businesses that manufacture aviation radio equipment. The Commission has not developed a definition of small entities applicable specifically to Radio Frequency Equipment Manufacturers (RF Manufacturers). Therefore, the applicable definition of a small entity is the definition under SBA rules for manufacturers of “Radio and Television Broadcasting and Wireless Communications Equipment.” This NAICS category, however, is broad, and specific figures are not available as to how many of these establishments manufacture RF equipment for aviation use. Under the SBA's regulations, a radio and television broadcasting and wireless communications equipment manufacturer must have 750 or fewer employees in order to qualify as a small business concern.<sup>365</sup> Census Bureau data indicates that there are 1,215 U.S. establishments that manufacture radio and television broadcasting and wireless communications equipment, and that 1,150 of these establishments have fewer than 500 employees and would be classified as small entities.<sup>366</sup> The remaining 65

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<sup>358</sup> 5 U.S.C. § 603(b)(3).

<sup>359</sup> *Id.*

<sup>360</sup> 5 U.S.C. § 601(3).

<sup>361</sup> 5 U.S.C. § 632.

<sup>362</sup> 13 C.F.R. § 121.201, NAICS code 513322 (changed to 517212 in Oct 2002).

<sup>363</sup> U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, “Establishment and Firm Size (Including Legal Form of Organization),” Table 5, NAICS code 513322 (issued Oct. 2000).

<sup>364</sup> *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is “Firms with 1,000 employees or more.”

<sup>365</sup> 13 C.F.R. § 121.201, NAICS code 334220.

<sup>366</sup> Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, 1997 Economic Census, Industry Series – Manufacturing, Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing, Table 4 at 9 (1999). The amount of 500 employees was used to estimate the number of

(continued....)

establishments have 500 or more employees; however, we are unable to determine how many of those have fewer than 750 employees and therefore, also qualify as small entities under the SBA definition. We therefore conclude that there are no more than 1,150 small manufacturers of radio and television broadcasting and wireless communications equipment.

**D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements:**

The *Further Notice* seeks comment on a number of possible rule changes that may affect reporting, recordkeeping and other compliance requirements. However, we believe that, with the exception of possible rule changes imposing additional technical requirements for certain aircraft earth stations, all of the possible rule changes discussed in the *Further Notice* are deregulatory in the sense that they do not impose new requirements on licensees or equipment manufacturers, but instead enhance the ability of licensees and manufacturers to provide and use new services and equipment on a permissive basis, and therefore will benefit small entities as well as the aviation community as a whole.

We invite comment on our tentative conclusion that the following possible rule changes will not have a negative impact on small entities, or for that matter any entities, because they would facilitate flexible use of the spectrum by licensees and/or design flexibility for manufacturers of avionics equipment, and do not impose new compliance costs on any entity: (1) accommodating use of Universal Access Transceiver technology on the frequency 978 MHz; (2) eliminating all requirements specific to data rates and modulation types; (3) enabling the use of non-geostationary satellite networks for AMS(R)S; (4) broadening the AMS(R)S regulations to take account of satellite systems other than Inmarsat's; (5) authorizing use of the 1990-2025 MHz band for AMS(R)S; (6) reallocating the frequencies formerly reserved for the Civil Air Patrol; (7) removing the radionavigation allocation at 14000-14400 MHz; (8) streamlining the listing of HF band frequencies in Part 87 frequency tables; (9) expanding the number of air traffic control frequencies available for ground control communications; (10) permitting certification of back-up safety devices designed to supplement conventional 121.5 MHz Emergency Locator Transmitters (ELTs); and (11) authorizing a special station identification format to be used by aircraft that are being operated by maintenance personnel from one location in an airport to another location in an airport. To the extent that commenters believe that any of the above possible rule changes would impose a new reporting, recordkeeping, or compliance burden on small entities, we ask that they describe the nature of that burden in some detail and, if possible, quantify the costs to small entities.

We tentatively conclude that any compliance burden stemming from new technical requirements for aircraft earth stations used in the provision of AMS(R)S will fall not on small entities but on large entities, such as mobile satellite system operators, airlines, and large manufacturers. We invite comment on this tentative conclusion. Commenters should identify with particularity those small entities that may be affected by these requirements, and, if possible, quantify the costs of any such requirements.

**E. Steps Taken to Minimize Significant Economic Impact on Small Entities and Significant Alternatives Considered:**

The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives: (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting

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small business firms because the relevant Census categories stopped at 499 employees and began at 500 employees. No category for 750 employees existed. Thus, the number is as accurate as it is possible to calculate with the available information.



requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.

We hereby request comment on whether we can employ any of the above approaches to lessen compliance burdens on small entities if we adopt new technical requirements for aircraft earth stations. To the extent commenters believe that other of the discussed rule changes would also impose a compliance burden on small entities, we ask that they address whether any of the above approaches to reduce that burden is appropriate.

We hereby invite interested parties to address any or all of these regulatory alternatives and to suggest additional alternatives to minimize any significant economic impact on small entities. Any significant alternative presented in the comments will be considered.

**F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules:**

None.